THE BUILDER

A Journal for the Architect & Constructor

MARCH 2, 1928 — No. 4439

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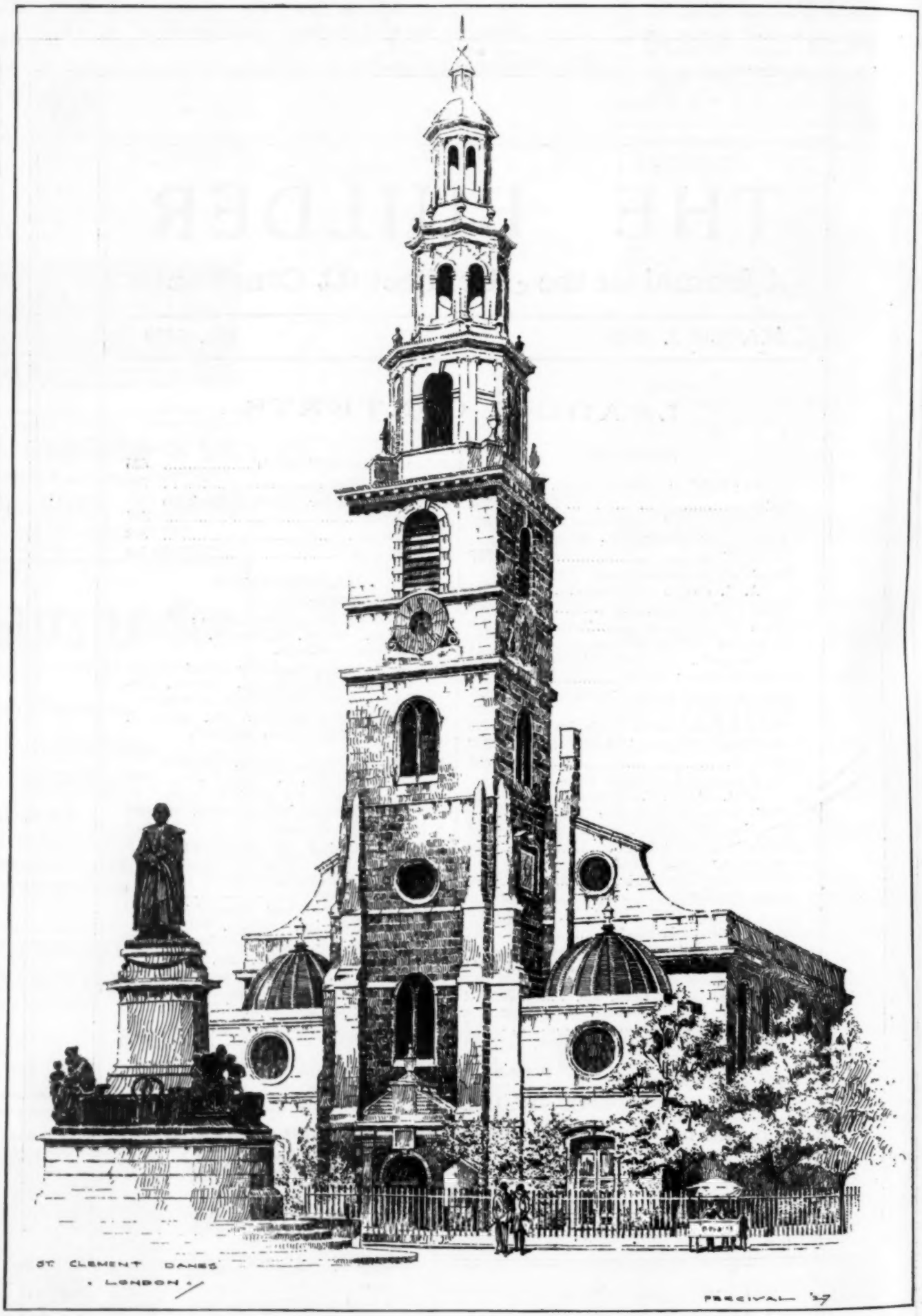
86TH YEAR



St. Clement Danes, London.

From a drawing by Mr. F. Percival.

THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXXIV. No. 4439. MARCH 2, 1928.

BUILDING RESEARCH

WE have been consistent advocates of research in the many important problems connected with the ever-increasing developments in building. Good design must be based on good planning and construction, which in turn demand a thorough knowledge of materials and their behaviour under the varying and often exacting conditions of modern use. Though research should be the province of all large makers of materials, and does enter into the programme of a few of the most progressive of our manufacturers, the individual can hardly be expected to take up investigations which are for the common weal as contrasted with his own interests, and the general depression in industry has further tended to curb in a most unfortunate way the stimulus to the establishment of works research departments which followed our experiences during the late war. All the more essential is it, therefore, that some central authority should be at work on these problems, investigating, co-ordinating and disseminating information so that those concerned with building, be they architects, contractors or manufacturers, may be able to keep abreast with scientific progress and thus ensure the permanence of structures and their efficiency which mean so much in economy of effort and material.

In the Building Research Board of the Industrial Research Department we have this central authority, which has just published its first annual report from its new permanent home near Watford, where it has now been established for eighteen months. Many of our readers will remember the initiation of this department at Acton where, in small, temporary buildings, wisely decided upon to admit of the then funds available being expended on work as far as possible, it developed its activities under Mr. Weller. These sheds at Acton turned out some excellent work and possessed the great advantage of enabling the scope of an entirely new undertaking to be visualised in a way which its gradual development alone rendered possible. The result of this early experience has been evidenced in the rapid growth of the organisation at Watford under Dr. Stradling.

The Watford building is an old country house possessing plenty of outbuildings and land upon which already new buildings for the purpose of special investigations are springing up, and if its situation is somewhat inaccessible this at least has the advantage of safeguarding the researcher from the drain upon his time by casual callers from which many of us suffer in more central situations. Some of us remember the birth of the National Physical Laboratory at Teddington and have seen its enormous development, and it may well be that what this institution—itself now under the Industrial Research Department—has done for physics, covering practically every branch of engineering, the Building Research Station may eventually do for the great industry with which we are associated. How great this field is may be judged from the statement culled from the report, that there are about one million workers engaged in building and allied occupations and that the annual outlay on buildings in 148 centres representing some 16 million of the population is estimated at over 66 million pounds.

The success of any organisation must be based upon its policy of action, and the policy of the Building Board is to examine existing materials and their methods of application with a view to economies and improvements; to examine and devise new processes and materials; to diagnose failures and difficulties and to disseminate information and inculcate a scientific spirit in dealing with building problems. This policy covers a field wide enough to admit of almost endless expansion. It is not only within the walls of the Watford Station that these efforts are proceeding. A certain amount of work is carried out by arrangement with the Board at other centres under scientists who have made a special study of certain problems. We consider this all to the good as likely to bring those interested into direct touch with researches in different parts of the country. Further touch with the outside world is established by the creation of three Standing Committees on Weathering, Structure and Acoustics.

An interesting attempt has been made to classify materials, not on the old lines of use by the trades, but relative to their physical characteristics as crystalline, amorphous, and quasi-solid bodies. In this manner it is thought that questions of fundamental structure, about which so much remains to be learnt, may best be solved. Impatient people requiring a cure to obscure trouble must be content if their advisers treat symptoms, but the real cure rests, of course, upon the treatment of causes. Causes take a long time to discover, and it must be admitted that the scientist in searching for his cause often allows the practical outcome of his work to fall into a position of secondary importance, thus giving some excuse for impatience not infrequently displayed. It will be a matter for the Board to sustain the interest of those it endeavours to assist by practical examples of its work while the slower fundamental study proceeds at the same time.

That this aspect is realised may be judged from a few examples of the activities in progress. A subject much before us at present is the weathering of building stones, upon which a number of tests are being undertaken. These are not confined to the laboratory but extend to the examination of the decay in progress in various buildings, and as the resistance of stone to weathering depends much more upon physical structure than upon chemical composition, these physical aspects are properly given due prominence. The effect of various preservatives is under experiment, and the important factors of porosity and skin hardening are being investigated. The hydration of cements is another subject under review. This is connected with expansion troubles which, in spite of our long experience of ferro-concrete and modern methods of aeration, are all too well known to many of us. A beginning has been made on the investigation of vibration in buildings, a subject which promises to become of the greatest importance with the ever-increasing use of our roads for heavy traffic. The acoustics of buildings is receiving attention, and a special chamber sunk below ground has been constructed at Watford for experimental work. In order to probe the question of heating, ventilation and condensation, which are so important in modern cottage construction, a small house has been erected in which the effect of various wall linings can be ascertained experimentally.

The results of investigations, as many of our readers are aware, are published from time to time in the form of pamphlets allocated to special subjects, a list of which is given in an appendix to the report. What possibly is less well known is that the station is prepared to undertake special investigations by applicants on a cost basis and invites information upon difficulties and failures, also for general investigation purposes. If the building industry is to progress the scientific spirit which these researches are endeavouring to foster must be supported, We therefore commend this report to our readers, and look forward to the increasing activities of a department having so wide a field of unexplored territory ripe for development.

NOTES

Architecture's Proud Claim.

Attempts have been made by literary critics to trace the influence of Thomas Hardy's architectural training on his literature. They have seen his sense of architecture in the structure of his books, and his skill in relating the parts to the whole. Going a little further, into craftsmanship, they have seen the ordering of the words and sentences in terms of brickwork, and even the words themselves as each separate brick. To labour the analogy between literature and architecture would seem inappropriate but some day we hope that the subject will be dealt with by an architect. It may be that working in the opposite direction—from literature to architecture—there may be found qualities in the great genius of Hardy, that, in turn, will illuminate the art of architecture.

The Architect's Recognition.

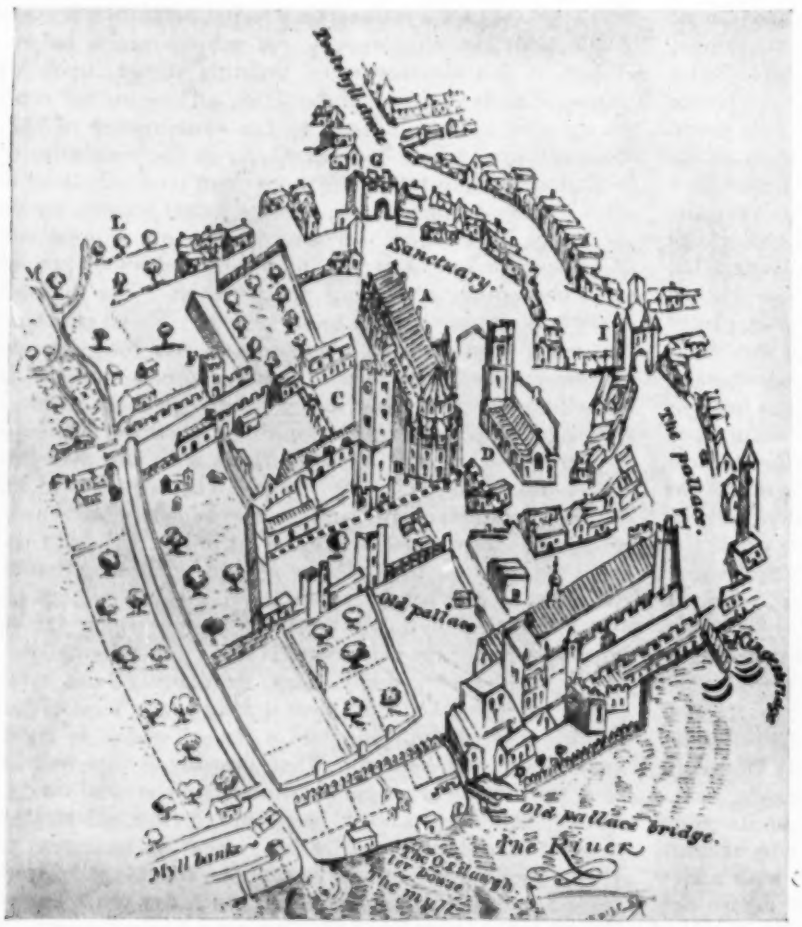
A correspondent reverts to the ever-recurring question as to how an architect may secure due recognition and reward for his services, especially where he is at work as a subordinate and not a principal, and especially where he is employed to bring some architectural value into engineering schemes or to carry out definitely architectural work for engineers and surveyors. So long as architects and architectural assistants have to sell their services for comparatively small return, there seems little hope for a better state of things. If an architect cannot impose terms of proper recognition for his services, who else can possibly help him? We are all aware that public officials have secured credit and emolument for architectural work the real credit for which should go to assistants; but are there not many public men who owe a large part of their success to able secretaries? In all walks of life this sort of thing occurs.

Old Brickwork at Westminster.

Recent excavations at Westminster, in Old Palace Yard, have laid bare some subterranean brickwork of a very interesting nature. The brickwork, of Tudor style, is built upon an older foundation of Kentish ragstone, a common building material in the Middle Ages, with oyster shells and ancient tiles mixed up in the deposit. The brickwork, of a dull red colour, is about two feet thick. On the plan reproduced on this page, dated about 1535, will be seen indicated by a dotted line the course of the present excavations, and the unearthed brickwork lies just on the angle below the letter D. Mr. Thomas Wilson, Deputy Keeper of Westminster Hall, and Clerk of the King's Works at Westminster, informs us that the whole site of the Palace of Westminster is a mass of old foundations of various early periods, and that there is scanty reason to believe, as has been suggested, that it may have been an underground passage between St. Stephen's Chapel and Henry VII's Chapel.

An Interesting Theory.

Records going back to 1535 contain no hint of the existence of a secret tunnel. An interesting theory held by Mr. Wilson is that the brickwork is part of the cellar belonging to one of the several houses (see immediately under the letter D on the plan), which are known to have stood in the garden of St. Mary's Chapel, one of which was occupied by a predecessor in office of Mr. Wilson, Geoffrey Chaucer, the poet. This may conceivably have been the very house that Chaucer occupied. Since the excavated trench lies down the centre of busy Old Palace Yard, it will have to be filled in, and it seems as though a definite solution of the mystery must remain unreached.



A Abbey Church.
B Litlington's Bell Tower.
C Cloister.
D St. Margaret's Church.
E Tower, over the Entrance to Little Dean's.
G Gatehouse.
H Broad Sanctuary.
I Gate to Palace Yard.
K Almonry.
L Orchard.

Bird's-eye View of the Precincts of the Palace of Westminster, about 1535. The dotted line indicates the course of the present excavations.

Minimum Salaries and the Registration Bill.

We are glad to publish on page 369 the letter of Mr. Cooke, Secretary of the Association of Architects, Surveyors and Technical Assistants in reference to our comment on page 324, last week, on certain remarks made by a speaker at the recent meeting of the Association at Caxton Hall and reported in our last issue. But there were no innuendoes in our comments, notwithstanding Mr. Cooke's frequent use of that word, though we drew attention to what we called a significant observation of one speaker at the meeting, which was held to consider the question of minimum salaries for architectural assistants, that unless the Registration Bill of the R.I.B.A. contained a clause fixing minimum wages for assistants the Labour Party could not support the Bill in Parliament. We do not infer that Mr. Cooke impugns the accuracy of our report or wishes it to be understood that the remark was not made, and of course we are glad to publish his disclaimers that his association is not committed to the policy indicated by the speaker in question.

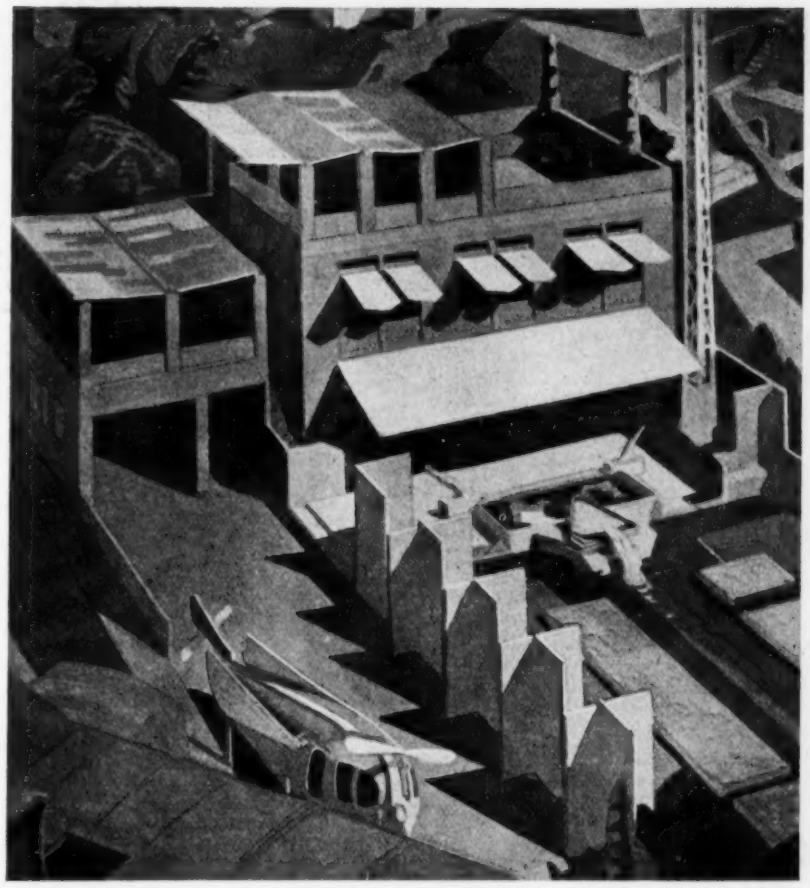
A Fresh Issue?

In this connection a correspondent writes: "If it is correct that an attempt is to be made to force the inclusion of a 'Minimum' Salary clause in the Registration Bill, by the threat of withdrawal of the Labour Party's support for the latter, such an attempt is surely foredoomed to failure. Whatever views may be held as to the need for regulating the salaries of architectural assistants by law, the fact remains that the promoters of the Bill, though they have discretion to accept minor amendments, have no authority to accept an entirely fresh issue such as this without reference to their professional constituents. The profession will decide

for itself if, and when, it approves the need for such legislation as this."

Ideal Homes at Olympia.

The unity of effect which has been attained in the present exhibition at Olympia is a distinct advance on the previous Ideal Home Exhibitions. A few fixed types of design have been adopted for the stalls, so that the repetition of designs in various groups gives a cohesion of effect which adds a certain amount of dignity and restfulness to the whole. A great screen bridge has been thrown across the centre of the hall, forming a passage-way across between the side galleries. The whole effect would have been much better if something lighter in design had been adopted, for the heavy solidity of the screen and many of the stalls are curiously alien to the British sympathies and traditions. Two of the house designs in the annexe suffer from the same lack of appeal to our Western ideas and seem only suitable for a hot country or the waterless desert. One of the houses is apparently intended to suggest what we may come to when every conceivable invention has been applied to the domestic problem. When one has learnt all about the handles and switches and has got to yearn for sun baths, warmed quilts and electric pianos, there will, we believe, still be longings for the simple life.



"The House of the Future" at the Ideal Home Exhibition.
Mr. R. A. Duncan, A.R.I.B.A. (Messrs. Percy Tubbs, Son and Duncan), Architect.

The Ideal Home.

It would be a valuable feature of an Ideal Home Exhibition if there was always exhibited one really good example of a comfortable, economical and well-proportioned cottage such as several of our best architects have done, just to have in evidence that British architects and builders can supply something which approaches very near to the ideal. It would not necessarily be the very cheapest structure which could be erected, but it would show that economy and beauty may go together. A well-designed cottage is not necessarily of a Tudor character of course, any more than it should look like a mud hut for a hot climate. The insistence in so many designs on flat roofs does not as a rule make a sympathetic appeal to the public, but if the development of the aeroplane should make flat roofs essential we shall have to submit!

Drawings by Alfred Stevens.

Our readers should not overlook the exhibition of drawings by Alfred Stevens (on view at 9, Conduit-street till March 8) which are the gift of Mr. Sigismund Goetze to the R.I.B.A. No sketches or drawings by Stevens lack in interest, and these sketches add still further to our appreciation of a singularly gifted artist.

The "Ideal" Conditions.

In our efforts to analyse the movements of mankind, we imagine that everyone has his own ideal civilisation in mind—whether it is our particular brand or not—and no doubt the architect has his own Utopia. An admirable commentary on our efforts to interest our readers is to be found in one of Mr. Edgar Wallace's inimitable detective stories. We have frequently remarked upon this author's faculty of hitting nails on the head. Here is what he makes one of his characters say:—

"Without the spur of poverty a man is just a loafer after his fancies. It is when a man has to paint what the public wants that he growls himself to greatness. All the masters did their best work to order — Murillo, Leonardo, Bellini, Michael Angelo—chapel-hacks every one of 'em! Greuze painting like the devil to keep his extravagant virago of a wife supplied with money; Morland and his public-house signs; Gainsborough with his duchesses—when an artist can afford to choose his own subjects he's finished!"

The Cynic.

A correspondent writes:—"I am glad to see that the War Office tanks scattered about in our lovely villages have not been painted, and that they are rusting away quickly. May Heaven deal gently with those worthy people who cut down lovely trees to house these grim relics. I think the idea must have been part of the propaganda of the League of Nations, so admirably does it fulfil its purpose. The other day I saw, opposite the entrance to a rural public building, a 'symbolical' sculptured group representing (I gathered) Victory. At right angles to this group a gun carriage was mounted on a platform, and the muzzle was pointed directly in the centre of another doorway. I do not know which was really the main entrance; neither do I know whether the 'symbolical' meaning of the two together represented the parable upon how to get the best of two possible worlds, nor whether the one supplemented the other. I merely wondered how soon this would rust, and which would be the first to perish."

Tenants of Municipal Houses.

A correspondent writes: "At a recent Conference in London the Medical Officers of Health for the County of Essex, East Ham and West Ham were very outspoken on the condition of some of the L.C.C. houses after occupation. I see that a question is being asked on this matter in Parliament. It is of considerable importance, for if destructive tenants are allowed to work their will in new houses, public money is being wasted. It is interesting to note that during the past few months a number of municipalities have adopted methods of management initiated by the late Miss Octavia Hill that were well described in a brochure issued with a Foreword by Dr. I. G. Gibbon, of the Ministry of Health. The experience of Chesterfield is of special interest in this matter, and Colonel Levita, who has the responsibility of being Chairman of the Housing Committee of the L.C.C., might well pay some attention to a Report that has just been issued on the result of a year of such management."

GENERAL NEWS

Professional Announcement.

Messrs. Knapp-Fisher, Powell & Russell have, by arrangement with the executors, taken over the goodwill of the practice of the late Mr. G. H. Fellowes Prynne, F.R.I.B.A. All correspondence, etc., relating to Mr. Prynne's practice is accordingly transferred to their address, 4a, Lower Belgrave-street, S.W.1.

Mr. Thomas Hardy's Estate.

The estate of Mr. Thomas Hardy, O.M., has been valued for probate at £91,707. He directed that the National Gallery and the National Portrait Gallery should have such portraits of himself as they might select.

Mr. Leslie Chatfeild-Clarke's Estate.

Mr. Leslie Chatfeild-Clarke, M.B.E., J.P., M.I.M.E., of Daylesford, Newport, Isle of Wight, who died on January 18, aged 62, left estate of the gross value of £30,621, with net personalty £27,654.

Trajan's Market, Rome: A Stock Exchange.

After many months of hard work, conducted in almost complete secrecy, the Italian archæologist, Signor Corrado Ricci, says the *Times* has unearthed a vast building of great interest and importance lying between the Forum of Trajan and the end of the Via Nazionale. The demolition of the unsightly barracks situated near the Forum of Trajan and the Ulpian Basilica has revealed a majestic edifice, which experts declare to be the markets of Trajan. It is a three-story building constructed in a semi-circular form, with 12 shops still preserved on the first floor, others again on the second, and a large hall almost 50 feet in height on the third floor. This hall served as a Stock Exchange. Each of the shops on the ground floor still preserves its outward decoration in black and white mosaic, while the staircases leading up to the upper floors are in an excellent state of preservation. The best shops, it is said, were those on the second floor.

Mr. Edward Gabriel.

We record with regret that Mr. Edward Gabriel, A.R.I.B.A., died suddenly at his residence in West Kensington on February 22. He was a partner in the firm of Messrs. Edmeston and Gabriel, architects and surveyors, of Old Broad-street, E.C. The business was founded more than 100 years ago by James Edmeston the elder (1791-1867), who practised at Salvator House, in the City. In 1827 one of his pupils was George Gilbert Scott, who (as then was the custom with pupils) lived with him at Homerton. Later on, in 1830, William Moffatt, who was afterwards in practice with George Gilbert Scott, also became a pupil. From that date many architects who have since obtained distinction, and many others now in active practice, became pupils from time to time. Arthur Ashpitel, who founded the Ashpitel Prize of the Royal Institute of British Architects, was also connected with the firm, and, among many interesting records, some of his possessions, including a valuable library, still remain. Edward Gabriel was the son of Samuel Burleigh Gabriel, who was a well-known ecclesiastical architect practising in Bristol some 70 years ago.

Glasgow's New Bridge.

The new King George V. bridge at Glasgow, which was formally opened to traffic by the Lord Provost (Sir David Mason), is claimed to be technically the most important structure built in Great Britain in reinforced concrete. The bridge is intended to relieve the abnormal traffic congestion in the centre of the city. The King last July laid the memorial stone of the bridge, which is in three spans. The centre arch is 146 ft. long, while the two other spans are each 110 ft. long, the width of the bridge being 80 ft.

COMPETITION NEWS

London Aircraft Terminus.

The Council of the R.I.B.A. have accepted an offer from the directors of the Gloster Aircraft Co., Ltd., and Messrs. H. M. Martyn and Co., Ltd., to give a prize for the best imaginative scheme for a London aircraft terminus suitable to the supposed requirements of air traffic fifteen years hence.

The general object of the competition is to stimulate the imagination and foresight of architectural students and to assist them to visualise the influence which aerial development must have upon the design of a first-class aerial terminus, with every accommodation for personnel and machines, and with every equipment and comfort for passengers.

The subject of the competition will be a terminus for land planes or amphibians only, assuming that seaplanes and airships will have separate termini.

The competition will be open to bona-fide students of architecture who are Associates, elected Students or registered Probationers of the R.I.B.A., and who are below the age of 30 years on September 1, 1928.

The competition will be conducted in two stages. In the preliminary competition each competitor will be required to deliver to the Secretary, R.I.B.A., 9, Conduit-street, Hanover-square, W.1, by 12 mid-day, on Saturday, September 1, 1928, a written report of not more than 1,000 words, indicating the general line upon which he will base his design, *e.g.*, his view on the development of aircraft, his conception of the requirements, and his suggestions on the general layout of such an aerodrome. These points should be stated broadly and principles rather than detail should be aimed at. The report must be accompanied by one half imperial sheet of sketches in pencil, illustrating the report. No questions will be answered in connection with the preliminary competition. The report must bear the name and address of the author, and must be accompanied by a copy of his birth certificate and by a statement signed by a responsible architect to the effect that he is a bona-fide student of architecture. From this preliminary competition ten competitors will be selected for the final competition, and each will be paid £5 for his expenses. The ten competitors will be given an opportunity of attending a lecture at the R.I.B.A. by Major Mayo, consulting engineer to Imperial Airways, Ltd., and they will also be able to visit the aerodrome at Croydon.

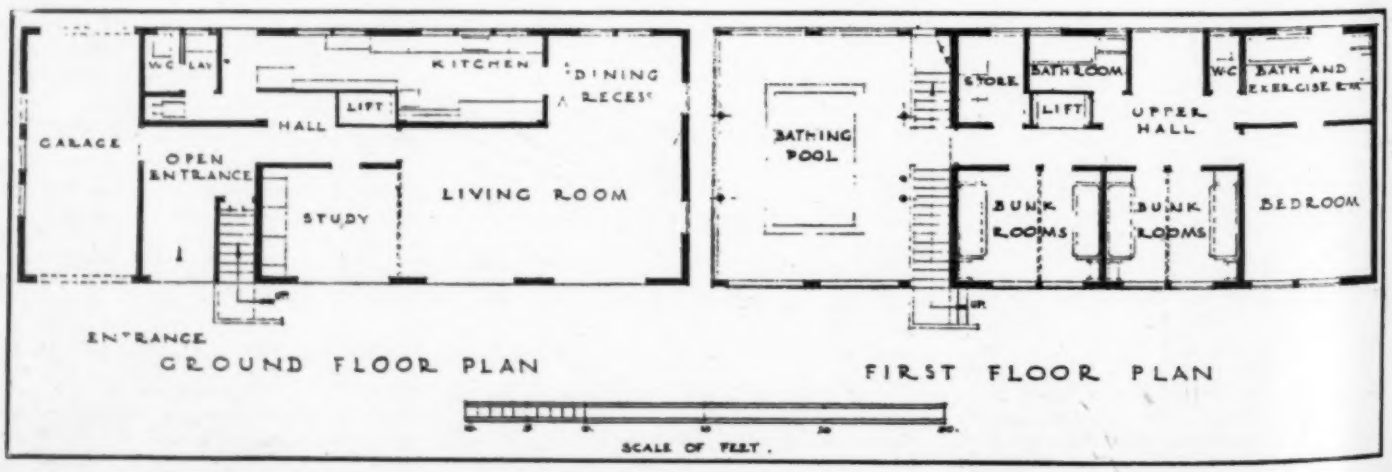
The lecture and the visit will take place during October, 1928. The conditions for the final competition will be sent to the ten competitors so as to reach them on November 1, and they will be required to hand in their drawings, which must not exceed two double elephant sheets, by January 10, 1929. There will be two prizes in the final competition, a first prize of £125, and a second prize of £25.

The following have consented to form the jury to award the prizes:—Sir Sefton Brancker, K.C.B., Mr. C. Cowles-Voysey, Mr. E. Vincent Harris, Sir Edwin Lutyens, R.A., Major R. Mayo, Mr. T. S. Tait, Mr. Maurice E. Webb, Mr. G. E. Woods-Humphery (general manager, Imperial Airways, Ltd.).

A memorandum on the subject of the competition may be obtained free, on application at the R.I.B.A.

International Competition for Memorial Lighthouse to the Discoverer of America.

The Secretary of the R.I.B.A. has received a letter from the Foreign Office on this subject, in the course of which it is stated that Mr. Kellogg, in his capacity as chairman of the Governing Board of the Pan-American Union, has informed His Majesty's Ambassador at Washington by letter that the Fifth International Conference of American States, which assembled at Santiago, Chile, in 1923, adopted a resolution providing for the erection at Santo Domingo, the capital of the Dominican Republic, of a memorial lighthouse to the discoverer of America. In this connection the Governing Board of the Pan-American Union is providing for a world-wide competition of architects to be held in two stages. Thanks to the generosity of the Dominican Government arrangements have been made to offer prizes to a total amount of fifty-six thousand dollars ($56,000). Intending competitors are requested to write at once to the Technical adviser, Mr. Albert Kelsey, Pan-American Union, Washington, D.C. United States of America, for a copy of the publication setting forth the terms of the competition. In writing they should state their age, training, and experience. They should also indicate whether they desire the programme in English, Spanish, or French.



"The House of the Future."

Mr. R. A. Duncan, A.R.I.B.A. (Messrs. Percy Tubbs, Son & Duncan), Architect. (*See page* 365.)

SUNLIGHT IN BUILDINGS.

ON Monday evening, at the Architectural Association, 25, Bedford-square, W.C.1, Dr. Leonard Hill, member of the Medical Research Council, gave an address on "Sunlight in Buildings."

Before the address, the President (Mr. Gilbert H. Jenkins, F.R.I.B.A.), who occupied the chair, moved a vote of condolence to the relatives of the late John Hudson.

Four nominations for membership were announced, and the following new members were elected :—

Mr. J. H. M. Francis.
,, D. L. Robertson.
Miss M. Gilbert.
Mr. E. Stanley-Armitage.
,, H. H. J. Hobday.
,, T. N. Henderson.
,, A. J. Francke.
,, H. J. Tanton.

It was also announced that a conversazione is to be held on the completion of the additions and alterations to the premises, when the drawings submitted in the final competition for the Shakespeare Memorial Theatre at Stratford-on-Avon will be on exhibition, together with a model of Miss Elisabeth Scott's winning design. The students will give a cabaret entertainment from 10 p.m. to 11 p.m., and there will be dancing from 11 p.m. to 3 a.m.

Dr. Hill's address dealt with the hygienic value of sunlight in connection with the health of the community, and was illustrated with a number of lantern slides showing the effect of a deficiency of sunlight on animal and vegetable life. In his opening remarks he pointed out the extraordinary development in physique of many of the young men who joined the services during the war, due solely to the open-air life and good food they enjoyed after an early life often spent in dark slums and factories, in conjunction with insufficient food or wrong feeding. He also compared the average town dweller with uncivilised peoples, and demonstrated the better development of the latter due to a more simple life and particularly to a life spent in the open air with little or no clothing to prevent the sun's rays from acting direct on the body. At Lausanne a famous physician took in hand tuberculous and weak children from the cities and made them strong simply by open-air life and proper food; whatever the weather the children were naked, whether walking or taking part in Alpine sports.

At the Royal Orthopædic Ward at Stanmore the children were in wards open to the sun and air. All hospital wards should be built in that way. Many storied hospital buildings in cities should be done away with. The whole of the available evidence showed that such buildings were utterly wrong for hospital or curative purposes, but they were still being built. Only a few weeks ago he saw a new children's hospital with no gallery at all open to the sun and air, but to every hospital there should be a glass roof and an open balcony, and also a garden in which children could play in the open air; practically every kind of disease and wound was benefited by that kind of treatment. Only very old people who could not keep up their temperature, and people in a profound state of shock, should be confined to heated wards. At Treloar's Hospital children with hip disease and other complaints wore a minimum of clothing in the open air all the year round, and took their lessons and games in the open air, with the most striking beneficial results to their health. At a branch of the hospital at Hayling Island the children went into the sea water every day; if they could not go in by themselves they were dipped in the water; if they could not be dipped they were laid on the beach and sprinkled. The seawater helped to cure disease caused by bad feeding and bad housing in the big cities.

In the matter of health there were two agents to be considered. One was cold air, for it was supremely important that the body should be adequately bathed in cold air, because it provoked the natural promotion of body heat and gave vigour and energy. The second agent was light. The heat rays given off by hot water heating systems, fires, lamps, and the sun fell upon the skin and were absorbed by the living tissues; they had exceedingly little powers of penetration, and were all caught by the surface layer of skin, and the heat then conducted inwards. These rays could only penetrate a few thousandths of a millimetre, so their energy was spent in warming the surface. Visible rays had much greater powers of penetration, many of them passing through the first layer of the skin and reaching the derma and the blood-vessels. So these visible rays were absorbed by the blood, and their energy converted in the blood. Ultra-violet rays were largely absorbed by the outer layer of the skin, and had little power of penetration as a rule, but some of these rays reached the living cells. These rays had great powers of effecting chemical changes, as, for instance, in the case of a photographic plate. When they fell upon the skin they caused sunburn, damaging some of the living cells and producing inflammation. If the skin were kept cool by irrigating it with cold water and concentrating on it these rays by means of a burning glass, there would be no sunburn: but if the rays fell on a portion of skin that was not kept cool, sunburn would result in a very short time. These rays were most valuable from the point of view of health. They came through the atmosphere, and were therefore absorbed by the smoke-clouds that overhung most cities. It had been shown that in industrial towns practically none of these precious ultra-violet rays ever penetrated through the smoke-clouds. Not only did smoke prevent these rays reaching the people, but it had an injurious effect on vegetation, for the essential Vitamin D was found to be absent in plants and vegetables grown out of the reach of ultra-violet rays.

Ordinary window glass also excluded practically all ultra-violet rays, but Vitaglass was far better from this point of view. It had been proved that Vitaglass allowed about 75 per cent. of these valuable ultra-violet rays to pass through, and for that reason it had been used in the new Monkey House at the Zoo.

In moving a vote of thanks to the lecturer, Mr. Percy Waldram said their attention had been drawn to the important parts played by architects in such matters. Architects were often responsible for considerable losses of sunlight and air. There was, of course, the law of Ancient Lights, which were looked upon as a certain protection. By these laws they endeavoured, from an individualistic point of view, to ensure for the community a certain amount of light and air, and architects had to conform to them. If the architect aimed at pleasing his client, he would probably endeavour to crowd as much floor space as possible on a site, and he would probably be amply assisted in doing so by the local authority concerned, which would want to get as much in rates as possible from the building. What stood between the building owner and the community? He suggested the active co-operation of architects and the veto of the Minister of Health. The Minister of Health would undoubtedly be influenced by a public agitation, and architects could in veigh against the Building Laws as they stood to-day. Architects might make themselves thoroughly unpopular on this question, so that the Minister of Health could secure that support necessary in order to prevent such abuses.

Seconding the vote of thanks, Dr. Millais Culpin said if people trusted to the natural instincts of their children such mistakes would not be made. Children, for instances, preferred to be without much clothing, and preferred the open air; but, to the detriment of the children, anxious mothers wrapped them up in too many clothes and kept them in warmed rooms, when they would be better in the open air.

Dr. Bourndillion said the present process of doctors trying to cure people of diseases was a very expensive and unsatisfactory one; it would be far better if the whole population made a determined effort to prevent disease.

Mr. Knapp Fisher said it should be pointed out that the architect who designed a building so that neighbouring working-class dwellings were deprived of light and air was producing a potential slum, and that aspect of the problem should be seriously considered. Lack of light and air was one of the most potential factors that caused slums, and architects should carefully consider a site before designing a seven- or eight-story building.

Mr. Stanley Hamp said he thought the problem was one for scientists rather than architects. A great deal of good would be done if such lectures could be given to the general public. He did not see how architects could carry on such work as that done by Dr. Hill; surely the first thing to be done was to get the public to appreciate the facts. In a great town such as London there were many difficulties to be overcome, but surely the lecturer had asked architects to deal with something that did not exist in London and other great cities, for sunlight did not exist there because of the smoky atmosphere. To get the full value of the sun, the air must first be cleared of smoke. He did not think the right way to approach the subject was for the architect to suggest to his client that a couple of stories should be left off a building in order not to affect the light and air of his neighbours. The best way seemed to be to impress upon the general public the need for light and air. In Vienna the municipality had established places where the public could get sun baths, and it seemed that the provision of such establishments in all large cities would be an advantage; if the atmosphere could not be sufficiently cleared to permit the sun to get to the people, opportunities should be afforded for the public to get to the sun.

The President, in putting the motion to the meeting, suggested that architects might urge clients to use Vitaglass in order to admit ultra-violet rays. Also, if scientists established it as a fact that schools should be built in a certain manner it would be better for all children to attend such schools; if that were the case, why not have a standardised school design to which all schools must conform?

In briefly acknowledging the motion, the lecturer mentioned that it was possible to get good results from open-air schools even in crowded industrial areas. At Salford such a school had been built, and children lived and slept there. At first they complained of the cold, but after a short time they asked to be allowed to wear less clothing and were healthier and happier.

THE REPAIR OF ANCIENT BUILDINGS—IX.

By A. R. POWYS, A.R.I.B.A.

Wattle and Daub.

Where the wattle and daub filling between the timbers is so deteriorated as no longer to resist weather, or where it has disappeared, it is often the custom to substitute concrete for it. When this is done the following precautions should be taken. In early work the sides of the upright timbers were grooved to give a hold for the hazel or rent oak reinforcement of the clay daub filling. Where these grooves exist they form a wind-and-water check between timber and concrete. But more often the timbers are found with no such groove. It is then advisable to screw an oak fillet on the sides of the posts so that when the concrete is cast in position the fillet will form the check. It is advisable that the fillet be screwed and not nailed, for unless this is done it is apt to be drawn away when slight movements occur either in the framework or the concrete. The oak fillets may be bedded in mastic or other waterproof bedding to make that joint watertight. The concrete should be cast about half an inch back from the face of the timbers so that it can be given a plaster finish which will be flush with the framing face. It is Mr. Wm. Weir's practice to use concrete filling in this way.

The wattle and daub process has recently been revived by Mr. H. E. Forrest, of Shrewsbury, and may now again be regarded as a practical means of filling the spaces between the timbers. Mr. Forrest wrote a very full description of the process for the Society for the Protection of Ancient Buildings, and although I have not had direct experience in the use of his methods, and although some have doubts as to their success, the matter is one of such interest as to make it worth printing here much of what he wrote. Also, I have recently found this practice in use in Suffolk. Mr. Forrest says :—

"Durability of an oak-framed building depended entirely on exposure to sun and rain. If protected from both, a timber building will last as long as one constructed of stone or brick. The north side never gets any sunshine, and seldom any driving rain. In almost every case the timbers on this side will be found to be original, and still sound. The east face suffers but little from sun or rain, as the morning sun is seldom strong, and rain from the east is infrequent, and when it does come it is usually a gentle drizzle with little wind.

"The south face is the one that suffers far more than any other. The sun blazing upon it throughout the hottest part of a summer day causes the wood to open. Then the heavy rains from the south and south-west drive into the cracks and cause the wood to rot. But still more damage is done by the rain running down the uprights of the frame to the sill and then being drawn in by capillary attraction into the mortice holes, where it rots the tenons and the posts from the bottom upwards..

"The west face suffers in the same way, only in a less degree. It suffers more than the east face, because it gets more driving rain, and because the westerly sun on a summer day is much hotter than the morning sun.

"The above considerations apply to a timber building where no precautions have been taken to protect from rain. But the Tudor carpenter devised a method of dealing with the problem which was not only effective, but added greatly to the beauty of his houses. He made the upper story to overhang the lower, the overhang being supported on prolongations of the floor joists. The verges of the gables overhung in a similar way and were faced with barge-boards, often elaborately carved. The overhang averaged two feet, but in Shrewsbury there are examples over three feet deep. This overhang protected the lower face from the sun in the hottest part of the day, when it is high in the heavens, and sheltered it from all but strongly driving rain. Most of the rain dropped off into space. I have found that where the overhang was sufficiently deep, the timbers on even the south side have lasted quite as well as those on the other faces. The frames of timber buildings all belong to one or other of two types.

"(1) Close-timbered frames.

"(2) Square-panelled frames.

"The close-timbered frame prevailed throughout the fifteenth and the greater part of the sixteenth century. In these the frame consisted of a row of upright posts reaching from floor to ceiling, and mortised at top and bottom into horizontal beams. The earlier the date, the larger and closer together are the posts.

"The square-panelled frame came into general use for external walls late in Elizabethan times, but it had been used long before that for internal partitions. Side by side with this a close-timbered frame continued in use up to about 1600, but modified by the insertion of transoms between floor and ceiling levels, and by diagonal bracings at the corners.

"The filling of the spaces in the above two types of frame was also of two types, to correspond to the needs of each.

"(1) In the close-timbered frame the filling was of laths (not woven) attached to the sides of the upright timbers.

"(2) In the square-panelled frame the filling was of woven sticks or plaited laths (wattle work) attached to the upper and under faces of the horizontal timbers.

"*Details.*—(1) The sides of the uprights had a groove cut into each, reaching from top to bottom. Into these grooves pieces of split oak lath were wedged irregularly, forming a flat series, but with irregular spaces between the laths. Clay was then applied, filling up all spaces and forming a thick layer over the laths on both faces. This was left for some time to dry, when it set quite hard and developed cracks all over the surface. The whole was finished with a coating of thin plaster, which ran into all the crevices, and cemented the whole filling into a solid mass, which was part and parcel of the framework, and quite immovable. (In order to prevent the clay 'dab' from falling to pieces as it dried, some binding material was always mixed with it.) All over the Midlands (where flax used to be grown in every garden, and where every 'spinster' made her own linen) the material used was flax-stems—the waste product of flax after the outer fibre had been removed. Straw was also used, but while the latter, when exposed to the air, nowadays falls to bits at a touch, the flax-stems are firm and tough after the lapse of centuries.

"The clay used for wattle and daub must

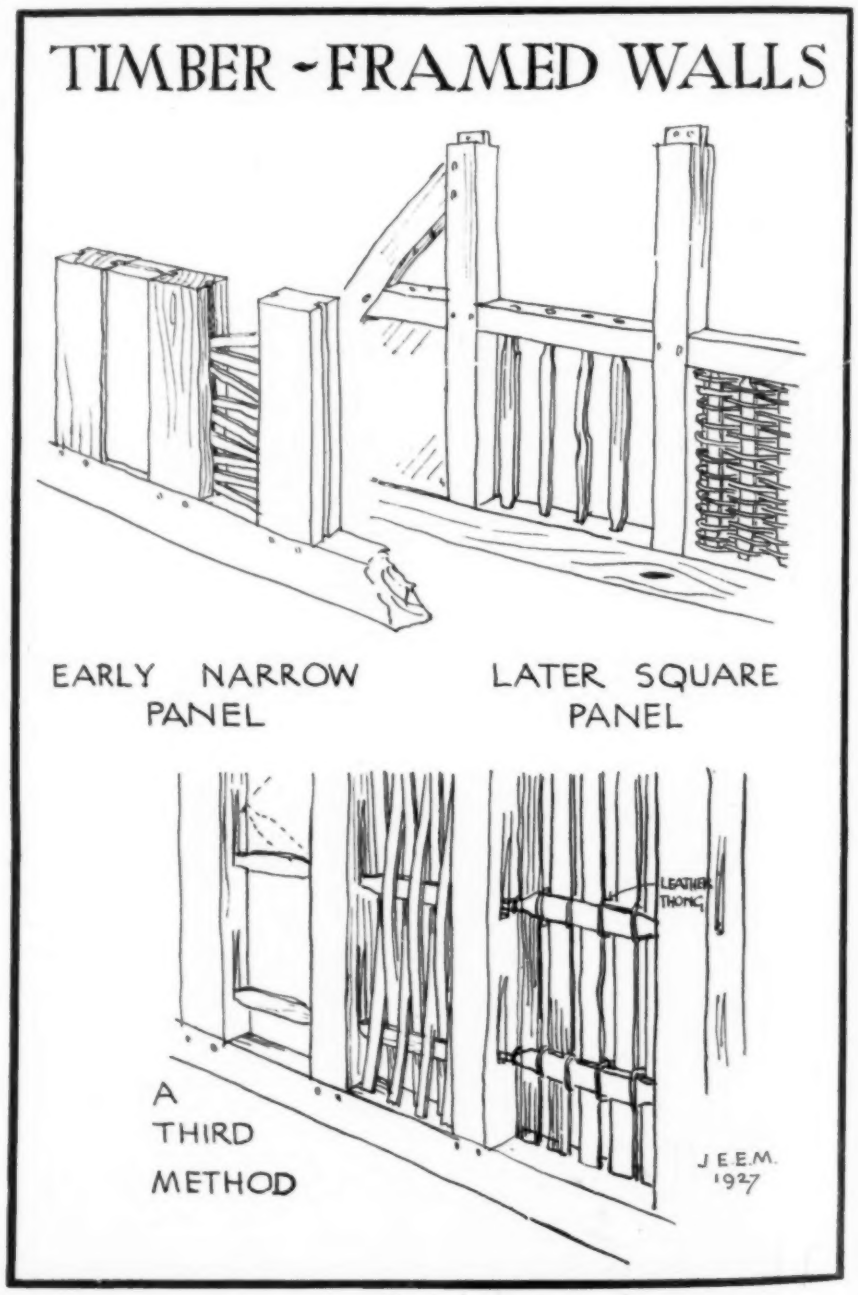


Fig. 8.

be well worked up with a spade until plastic, and it must be mixed with some fibrous material, as described above, or with tow.

"(2) A square-panel frame was filled with wattle work made thus:—

"Four staves of split oak were prepared about two inches longer than the height of the panel. Two were about three inches wide, the other two about half that width. These were 'sprung' into holes in the top and bottom of the frame-panel, the two wider staves to right and left, narrower ones between. Hazel boughs (in the natural state, with the bark on) were woven between these staves, forming a close basket (or wattle) work. Sometimes plaited laths were used instead of hazel boughs. The whole was finished with clay and plaster in the same way as described above. Strictly speaking, the familiar phrase 'wattle and daub' can only be applied to the square panel, as there is no wattle-work in the close-timbered frame. As there is much greater shrinkage in a square than in a narrow panel, it is more difficult to get the filling to fit tightly into the frame, especially at the sides, because there these are not grooved. In restoring a timber* building of this type it would be advisable to groove the sides and prolong the wattles into the grooves. This would give a firm attachment to the frame on all four sides. A timber-framed building treated in this way will be impervious to wind or rain. . . ."

Mr. Forrest does not of necessity advocate a slavish adherence to the old methods when repairs are in progress, but strongly recommends that the old principles be held to. He suggests that in close timber framing strips of slate may be used instead of laths, and in wide framing suggests metal. Probably iron is not the best metal, because it is so liable to expansion due to rust.

An examination of old examples of wattle and daub will disclose an immense variety of methods of fixing, though, more or less, they all accord with Mr. Forrest's description.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

"Houses and the Preservation of Rural England."

Sir,—Mr. E. Guy Dawber is incorrect in his statement and has misread my letter. I did not assert that he was blaming architects. Mr. Dawber says that the countryside is being spoiled by houses. I say that it is the architect who is responsible, and who has been appointed by local councils, at the instance of the Ministry of Health. The number of houses erected by speculative builders and others, compared with those of the many housing schemes, is very small, when one looks at facts. Let me ask him, what of the so-called garden cities and bungalow towns within fifty miles of London, and also on the Sussex and Kent coast? Are many of these not an eyesore? Yet these are being mostly carried through by members of the R.I.B.A., whose names are on the notice-boards. Again, what of the building being done by the land companies who are developing around London, which is mostly by members of his society? Has he visited these schemes?

The assertion that the bungalows and shacks are put up by speculative builders "without the aid of any architect" is, to my mind, not altogether correct. Many speculative builders employ architects, and the plans are prepared in architects' offices. I would remind him that there has of recent years come into existence a "touting clerk," or canvasser, in architects' as well as solicitors' offices. These gentlemen attend land sales, etc., and get to know who has bought land, or is intending to build a house or bungalow. They then call and quite informally ask if "you will let the governor prepare the plan for you." This is done in a great number of cases, and architects prepare sets of plans for £2 2s. or £3 3s. Mr. Dawber must not miss sight of this fact when he condemns such buildings, which may not rise to the standard of his expectation. I venture to suggest that, if the matter were investigated, it would be found that some of the worst examples are from an architect's plans.

I might say that the building of a bungalow or a house, whether good or bad in design, is a matter of what the owner is prepared to spend on it. At the present time many—it would be a bold assertion to say the majority—being built outside of public housing schemes are being built by persons who have a mortgage and, as a rule, none too much spare cash. Hence the outside appearance is not a thing which gets the most consideration. If, therefore, Mr. Dawber thinks he can improve matters, he must get funds at his command, or, rather, at the Society's command, and they can make a grant of a sum, equal to the difference in the cost of the owner's plan of building and that which the Society for the Preservation of Rural England would like to see.

It is interesting, however, to know that Mr. Dawber thinks the housing schemes of members of the R.I.B.A. "excellent in every way." But he cannot have seen many of the schemes around London prepared by his friends in the Institute, or, if he has, he must have viewed them through dark glasses, and, as you say in your leaderette of the 17th inst., "there are housing schemes which are a disgrace." I fancy Mr. Dawber ought to go and inspect a few within a motor ride of London, and he might change his mind.

E. Boulton.

* I have found this done in old buildings in the way indicated on the sketch (Fig. 8). —H. E. F.

The Genius of Halsey Ricardo.

Sir,—The appreciative and interesting obituary contributed to last week's *Builder* is intimate and excellent. The small block of offices which Ricardo erected on the south side of Great George-street, Westminster, in the midst of a row of nondescript houses, and employed salt-glazed bricks for its facings, is so simple and unpretentious that its original treatment and judicious proportions induced me to reckon this façade among the most satisfactory designs of its size erected during my time in London. Lest we forget, allow this reference to its outstanding merits, not the least of which is that it did not cause discord, quietly taking its place without any rumpus whatever. The writer of your notice favourably alludes to Ricardo's design for the Oxford Municipal Buildings won by H. T. Hare, and this reminds me of the same competitor's scheme sent in for the town hall at Marylebone (1911), when Sir Edwin Cooper was chosen. Ricardo's capricious plan was marked by an enormous campanile which overwhelmed his elevations, and the whole composition ranked as impossible, so that men wondered that so clever an architect should make such a bad mistake.

Maurice B. Adams.

"Roofs."

Sir,—With reference to your "leader" of February 10, regarding the roofing of the winning design of the "Concrete Houses Competition" with flat roofs, and your assertion that this is the obvious way to make the fullest use of concrete, it would appear to have been overlooked that there are to-day in this country thousands of houses roofed with concrete tiles of the plain English pattern, of colour equal to that of the best sand-faced clay tile. It is therefore difficult to be in agreement with this portion of your article. The company with which I am connected has manufactured and laid over ten millions of these tiles during 1927. In fact, there is nothing original about this, as there are several hundreds of houses in the south of England roofed with concrete tiles which have been in existence over 30 years.

I should like to bring to your attention the fact that a rather large housing scheme recently completed in the Metropolitan area is of the following construction:—Red concrete bricks up to the first floor, then rendered or roughcast and roofed with concrete tiles, laid red and dark colour at random. Half-round ridge and bonnet hips were used. Some of the blocks are faced with a concrete purple stock by way of variety, and the whole scheme is a very excellent illustration of the manner in which concrete can be used in house construction without making any departure from the style of architecture which is common to this country.

This should dispose of the fact that a flat roof, with its known imperfections and its foreign appearance, need not have been applied to the design in question.

O. Aisher.

[**** We have had samples of concrete tiles before us, which present a most pleasant texture and colour, besides answering well to absorption tests, and we wish to say nothing against such material. The fact remains, however, that in a competition designed to reveal the fullest uses of cement concrete for house-building purposes, the method which employs concrete for the actual structure of the roof, as in flat construction, answers to this purpose more fully than one where the concrete is only a covering on a timber construction.—Ed.]

The A.A.S.T.A. Caxton Hall Meeting.

Sir,—My Executive Council have instructed me to write you to correct any possible misconception as to the aims and policy of this Association in consequence of certain editorial remarks made in your columns in your issue of February 24. They feel sure that you would be the last journal to wish to do them any injustice—none the less, in consequence of an inquiry reported to the Executive Council, they feel that an immediate refutation of any innuendoes which may be drawn from those comments is absolutely necessary and urgent.

Shortly, we would wish to remind your readers of the following facts:—

1. The meeting in question was primarily a call to the R.I.B.A. to adopt a *constructive* policy for the whole profession—in which policy the A.A.S.T.A. expressly stated that it is only too anxious to assist.

2. That there is not a word of truth in the innuendo that the A.A.S.T.A. is opposing the Architects (Registration) Bill. In point of fact, the A.A.S.T.A. is supporting the Bill, but pressing for certain amendments on the Committee stage.

3. Similarly, that there is not a word of truth in the innuendo that the A.A.S.T.A. is allied to, or has any political dealings with, the Labour or any other political party. Any word which may have been spoken to give even the slightest countenance to such an idea was spoken only by one of the audience, and that from the body of the hall and not from the platform.

4. Further, that the A.A.S.T.A. has no political funds of any kind, and no political (*qua* political) aims of any sort or kind.

Finally, I feel sure that your sense of fair-play and your desire to build up a united profession working in the best interest of the profession as a whole will induce you to give as full prominence to this letter as was given to your editorial comments. Might I add that we are only too anxious to find others—and certainly to get the backing of your valuable journal—to say "ditto" to the very able way in which Mr. Hamlyn put forward a policy for the whole profession—because the policy therein outlined is not ephemeral; it has breadth of vision as its foundation and will overcome all obstacles. Thanking you.

V. H. Cooke,
Secretary,
Association of Architects, Surveyors, and Technical Assistants.

[See Editorial comment, page 364.]

[A letter on "The Decadence of Sculptured Foliage" is unavoidably held over. A further letter by Mr. William Harvey on "The Preservation of St. Paul's Cathedral" is on page 378.]

ILLUSTRATIONS

City of Oxford School and New Municipal Secondary School, Oxford.

As we announced in our issue for February 17, the assessor in these competitions, Professor C. H. Reilly, F.R.I.B.A., awarded first place in each case to the designs submitted by Messrs. William G. Newton and Partners, whose drawings are reproduced in this issue. Both schools are to be built in grey-coloured brick with a tiled roof to harmonise. The larger school is to be erected on a site on the outskirts of Oxford, and the smaller one on a site at Abingdon, below Folly Bridge. In the lay-out of the schemes the classrooms have been kept away from the noise of the road. The architects, in their designs, which are Georgian in character, have endeavoured to preserve the tranquility of the English tradition. The designs are subject to modification.

The Majestic Theatre, Retford.

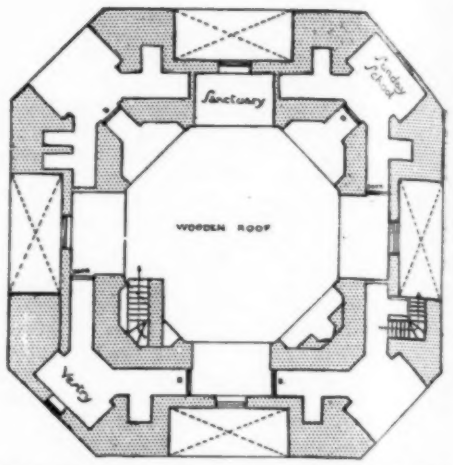
The main entrance to this theatre, which is from Coronation-street, has been made the chief feature of the external treatment, of which the elevations are carried out in varicoloured 2-in. facing bricks. The façade and steps to the vestibule are executed in marble supplied by Messrs. Fenning and Co., and the floor of this and the foyer is in terrazzo paving by the Reliance Flooring Co. At the end of the large panelled foyer are doors to separate cloakrooms, and opposite to the doors on the right that lead to the auditorium is the panelled staircase up to the lounge and refreshment buffet. From here further staircases lead to the stalls and circle, flanking either side of which are boxes and box annexes. The balcony is of steel and concrete construction, with reinforcement supplied by the British Reinforced Concrete Co. The stage is fitted with modern apparatus throughout, the safety curtain, etc., being supplied by Messrs. E. Oldroyd and Co., of Leeds, and fire appliances by the Minimax Co., Ltd. The main ceiling is cambered with grilled openings to extract fans, and the roofs are covered with asphalt and Ruberoid. A separate dressing-room block is included.

The general contractors were Messrs. A. Richmond and Sons, of Retford, and the sub-contractors were as follows:—W. Richards and Sons, Leicester, steelwork; Wilson and Sons, Mansfield, fibrous plaster; Young, Austin and Young, Leicester, heating and ventilating; Attenborough and Turpin, Nottingham, electric lighting; The General Electric Co., stage lighting; The Limmer and Trinidad Asphalte Co. and The Ruberoid Co., Ltd., roofs; The Crittall Manufacturing Co., steel casements; Wing and Webb, ironmongery and steel doors; Hinchcliff, Hinks and Burnell, Nottingham, lead lights; H. H. Martyn and Co., Ltd., Cheltenham, canopy and ornamental ironwork.

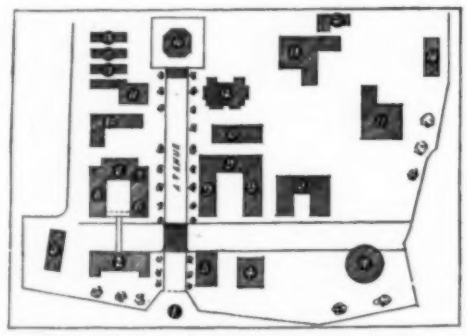
Mr. Alfred J. Thraves, F.R.I.B.A., of Nottingham, is the architect.

The Hospital Tower, Peshawar.

This tower, known locally as Said Khan's Burj, is about the oldest building that remains in Peshawar. It was built in the 17th century by Said Khan, a Wazir of the Moghul Empire; here he lived and held his Court, and dispensed justice to the Afghan tribes of the district. Between 1840 and 1850, the British came to Peshawar, and General Sir Harry Lumsden, who was Chief Civil Officer of the district, chose this Burj in which to live. Here he raised the famous Queen's Own Corps of Guides, and quartered his men in outhouses round the building. Sir Peter Lumsden and General Sir Richard Pollock, the Assistant Commissioner of Peshawar, lived here with him. Lumsden put in the upstairs floor, and converted parts of the clerestory into dwelling-rooms. He also fortified the tower, which bears signs on the roof of having been under fire. In places the walls are 14½ ft. thick. Later, the tower became a cholera hospital and then a shrine. In 1904 it became the property of the Mission Hospital, and on February 11, 1927, it was dedicated by the Bishop of Lahore for use as a chapel for the Hospital, the date coinciding with the 21st anniversary of the opening of the Hospital by Sir Harold Dean, the first Chief Commissioner of the North-West Frontier Province.



The Tower, Peshawar, N.W.F.P. India: First-floor Plan.



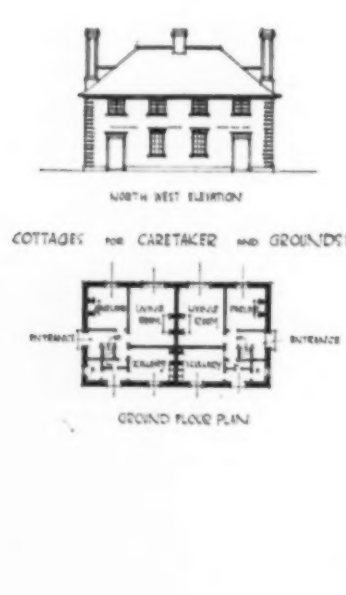
C.M.S. Hospital, Peshawar, India: Key to Lay-Out:—

1. Entrance.
2. Outpatients' Block.
3. Infectious Cases Ward.
4. Purdah Wards.
5. Indian Christian Dressers' House.
6. Operating Room.
7. Chapel.
8. Inpatients' Wards.
9. Seral.
10. Ancient Tower
11. House Surgeons' House.
12. Married Assistants' Houses.
13. Doctor's House.
14. Sisters' House.
15. High School Hostel
16. Old Tower.
17. Hostel Superintendent's House.
18. Servants' Quarters and Offices.
19. Servants' Quarters and Offices.
20. Servants' Quarters and Offices.
21. Servants' Quarters and Offices.

Ladybank U.F. Church, Fife.

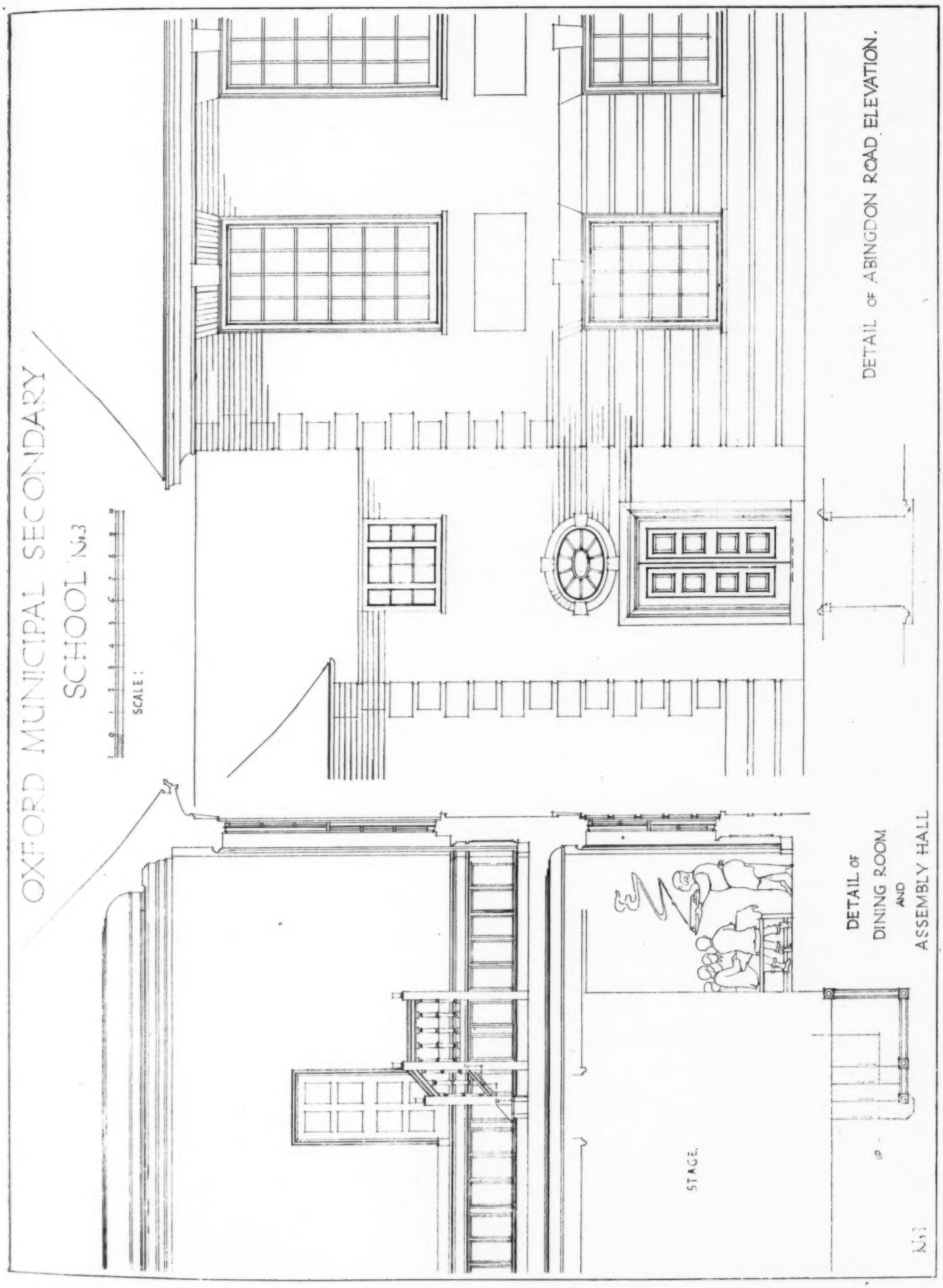
The theme of the decorative scheme at this church is based on the text, "I am the true Vine," the vine also being the mediæval symbol for eternal life. The church is of the usual debased Victorian Gothic type, and the designer has skilfully adapted his scheme so as to make the most of the main structural lines of the building.

To Messrs. J. Randall and Sons, decorators, Cupar, Fife, the greatest credit is due for the skill with which they have carried out the work. The general effect is somewhat reminiscent of an East Anglian scheme of diaper stencil work, but the scheme is distinctly modern in the adaptation of the theme. The designs and details for the work were prepared by and carried out under the direction of Mr. William Davidson, F.R.I.B.A., who has here shown an extensive knowledge of the work of the great periods of Italian, French, Belgian and English decoration, especially that of Norfolk and Suffolk. The porch and church hall are carried out to harmonise with the scheme of decoration in the church. Mr. Davidson has still to paint a life-sized panel in the centre of the entrance porch wall opposite the west door.

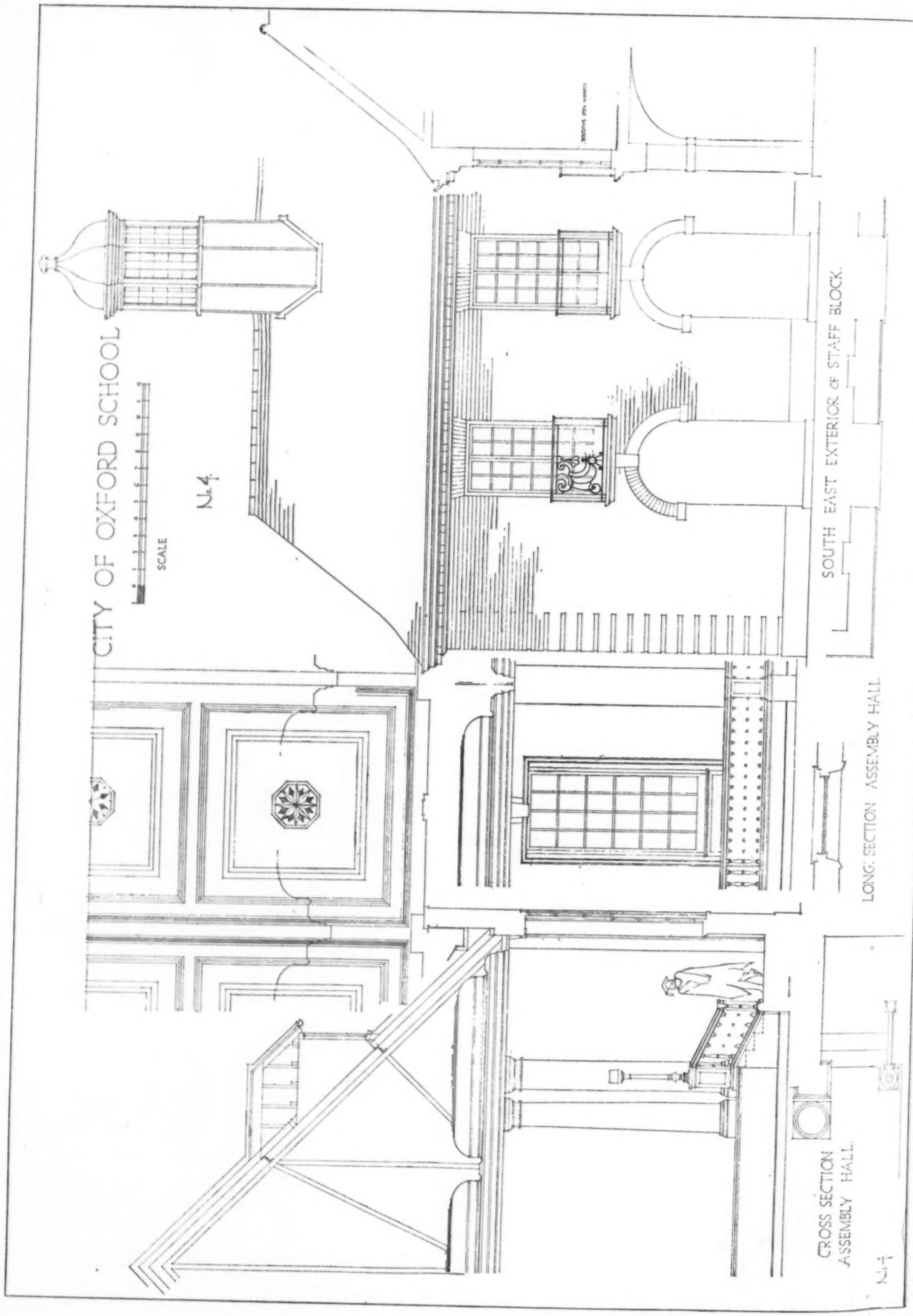


City of Oxford School Competition: Winning Design.

MESSRS. WILLIAM G. NEWTON & PARTNERS, Architects.



Oxford Municipal Secondary School Competition : Winning Design.
MESSRS. WILLIAM G. NEWTON & PARTNERS, Architects.



City of Oxford School Competition: Winning Design.
Messrs. William G. Newton & Partners, Architects.

1928.

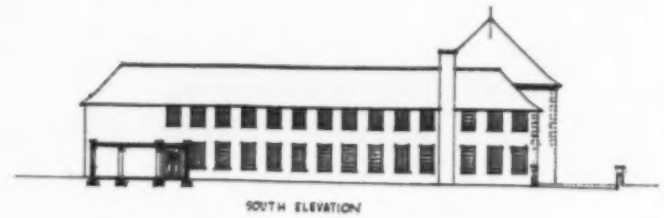
BRESSE. WILLIAM G. NEWTON & PARTNERS, Architects.

UNIV. OF MICH.

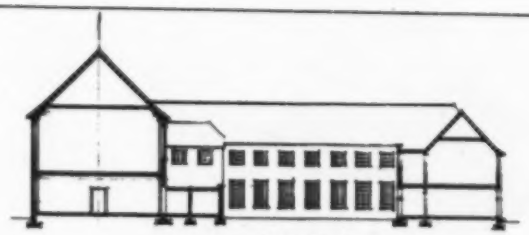
The Majestic Theatre, Retford.

MR. ALFRED J. THRAVES, F.R.I.B.A., Architect.

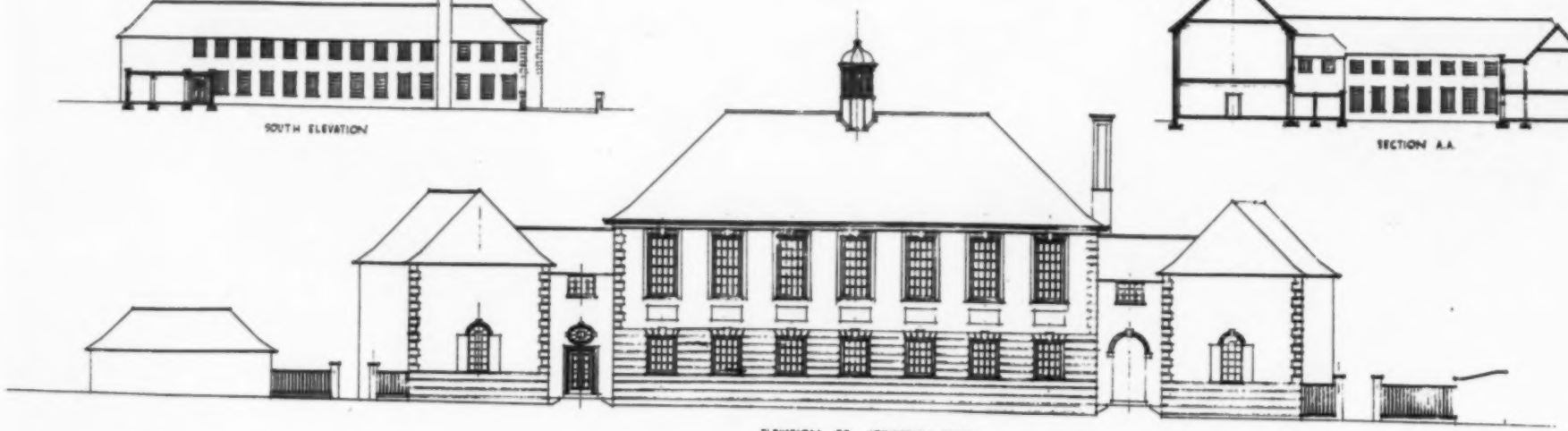
UNIV. OF MICH.



SOUTH ELEVATION

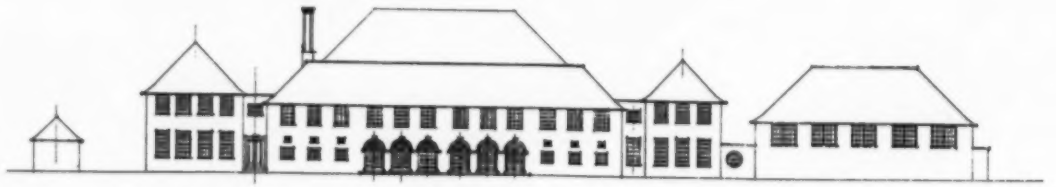


SECTION A.A.



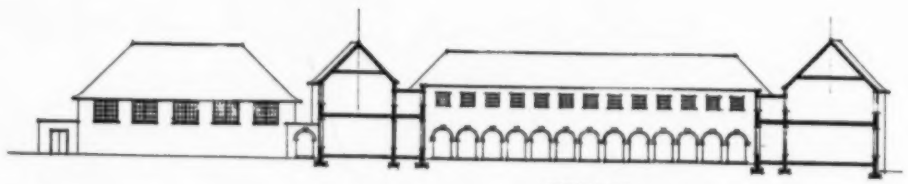
ELEVATION TO ABINGDON ROAD

NORTH ELEVATION

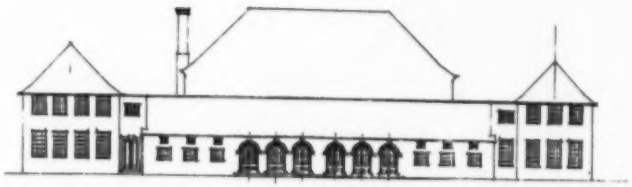


WEST ELEVATION

GYMNASIUM

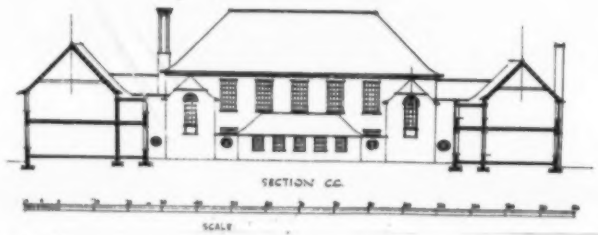


SECTION B.B.



WEST ELEVATION

SHOWING THE ADDITIONAL CLASSROOMS



SECTION C.C.

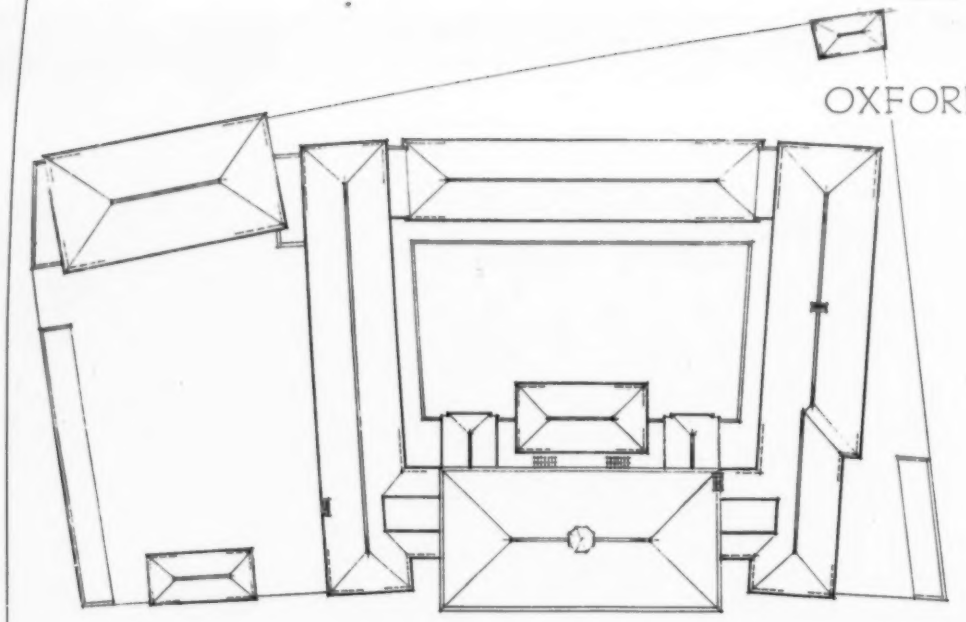
SCALE

SECTION CC.

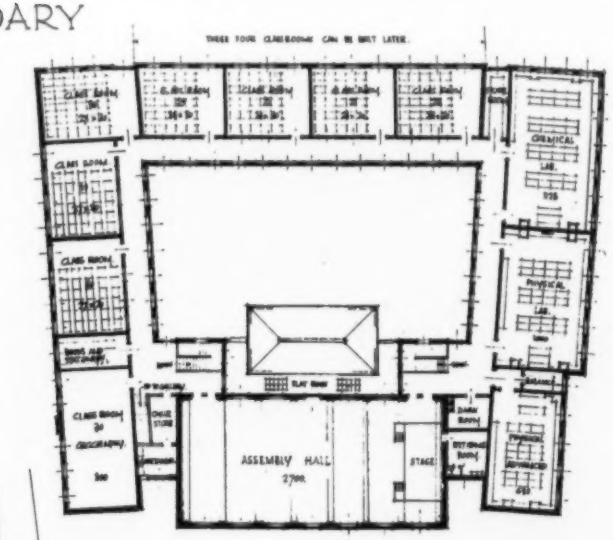
SCALE

OXFORD MUNICIPAL SECONDARY SCHOOL

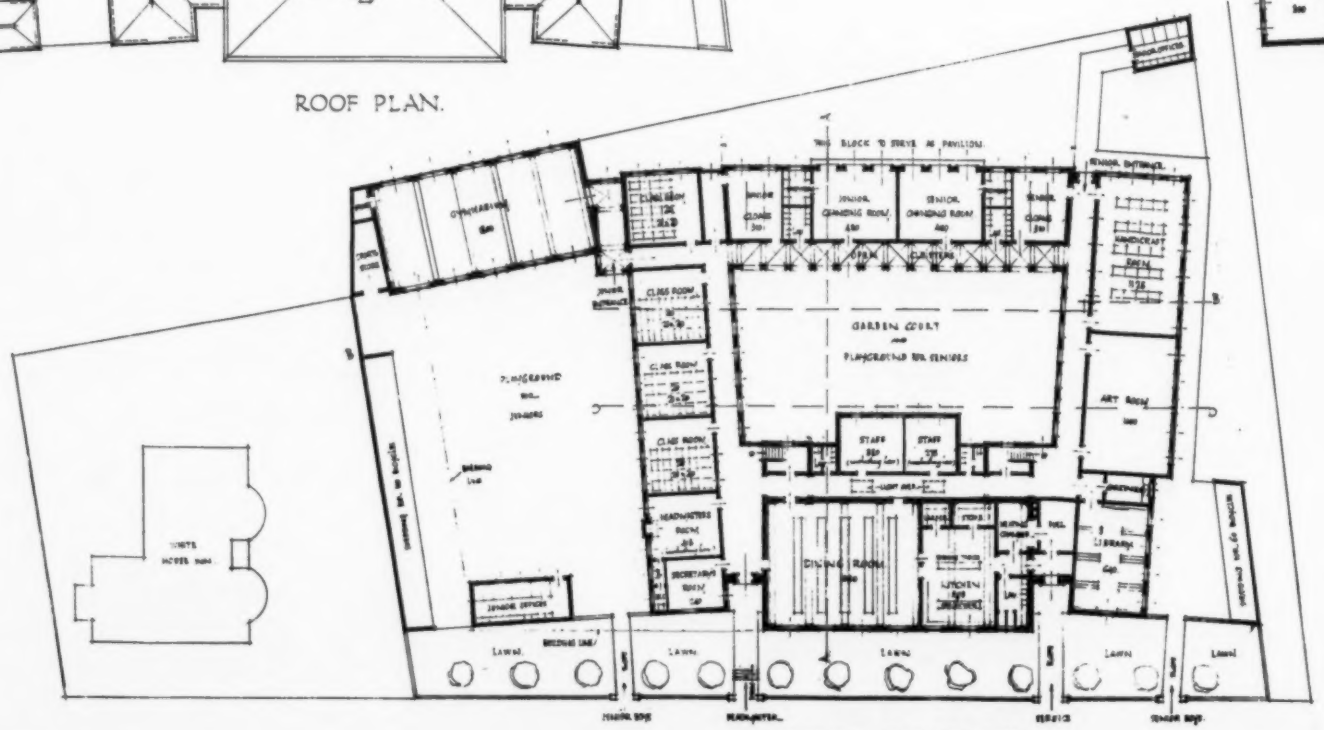
SCALE



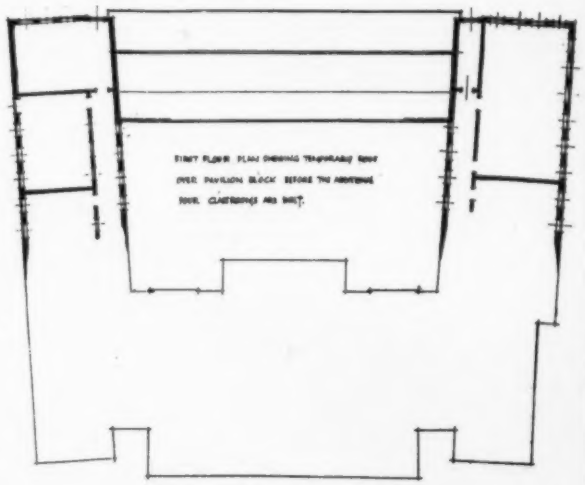
ROOF PLAN.



FIRST FLOOR PLAN



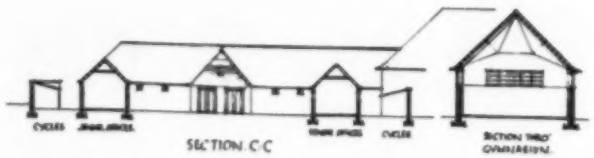
GROUND FLOOR PLAN.



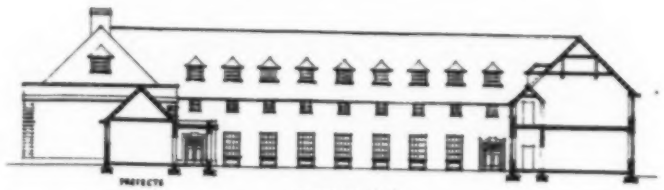
OXFORD MUNICIPAL SECONDARY SCHOOL COMPETITION: WINNING DESIGN.

Messrs. William G. Newton and Partners, Architects.

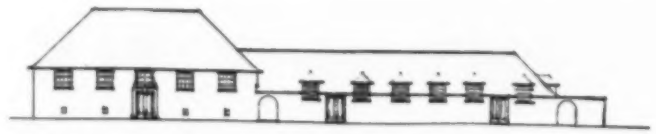
SCALE :



SECTION C-C

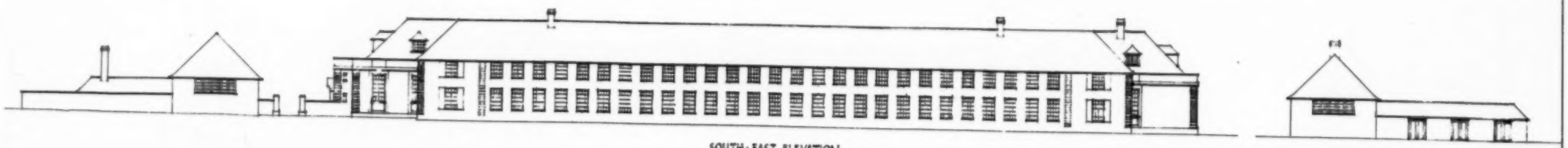


SECTION A-A.



NORTH-EAST ELEVATION of GYMNASIUM and CHANGING ROOMS.

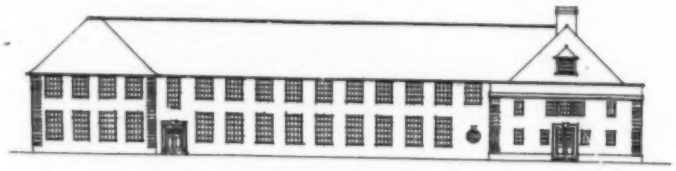
NORTH-WEST ELEVATION.



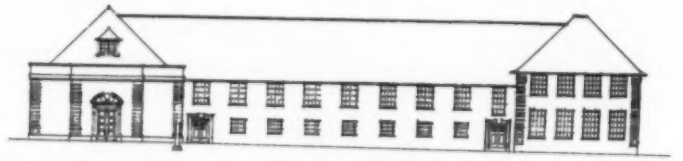
SOUTH-EAST ELEVATION.

SECTION B-B.

SECTION THRO' KITCHEN and SERVICE RM.



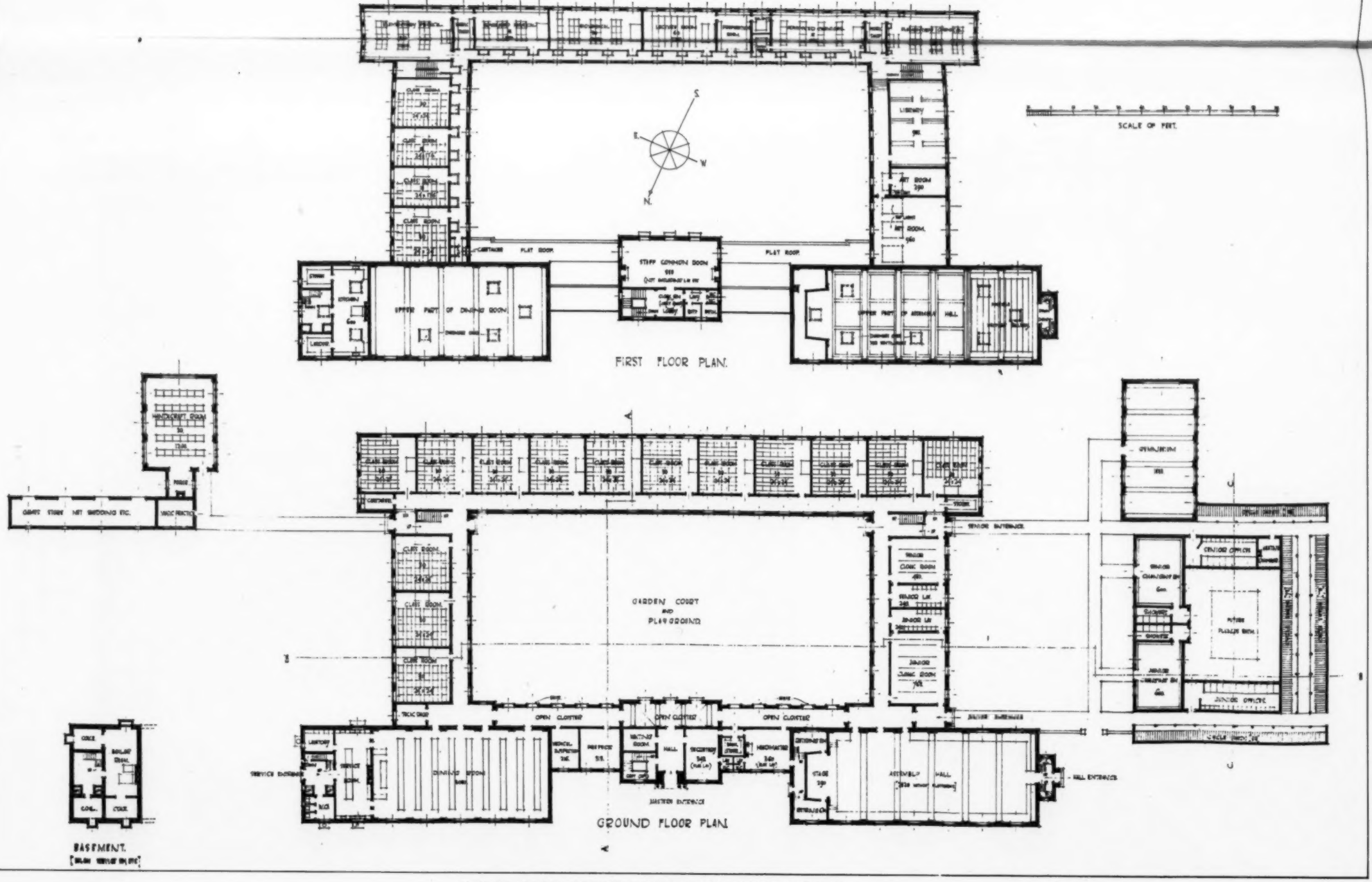
NORTH-EAST ELEVATION



SOUTH-WEST ELEVATION.

SECTION THRO' DINING HALL.

THE BUILDER, MAY 1



CITY OF OXFORD SCHOOL COMPETITION: WINNING DESIGN.

Messrs. William G. Newton and Partners, Architects.

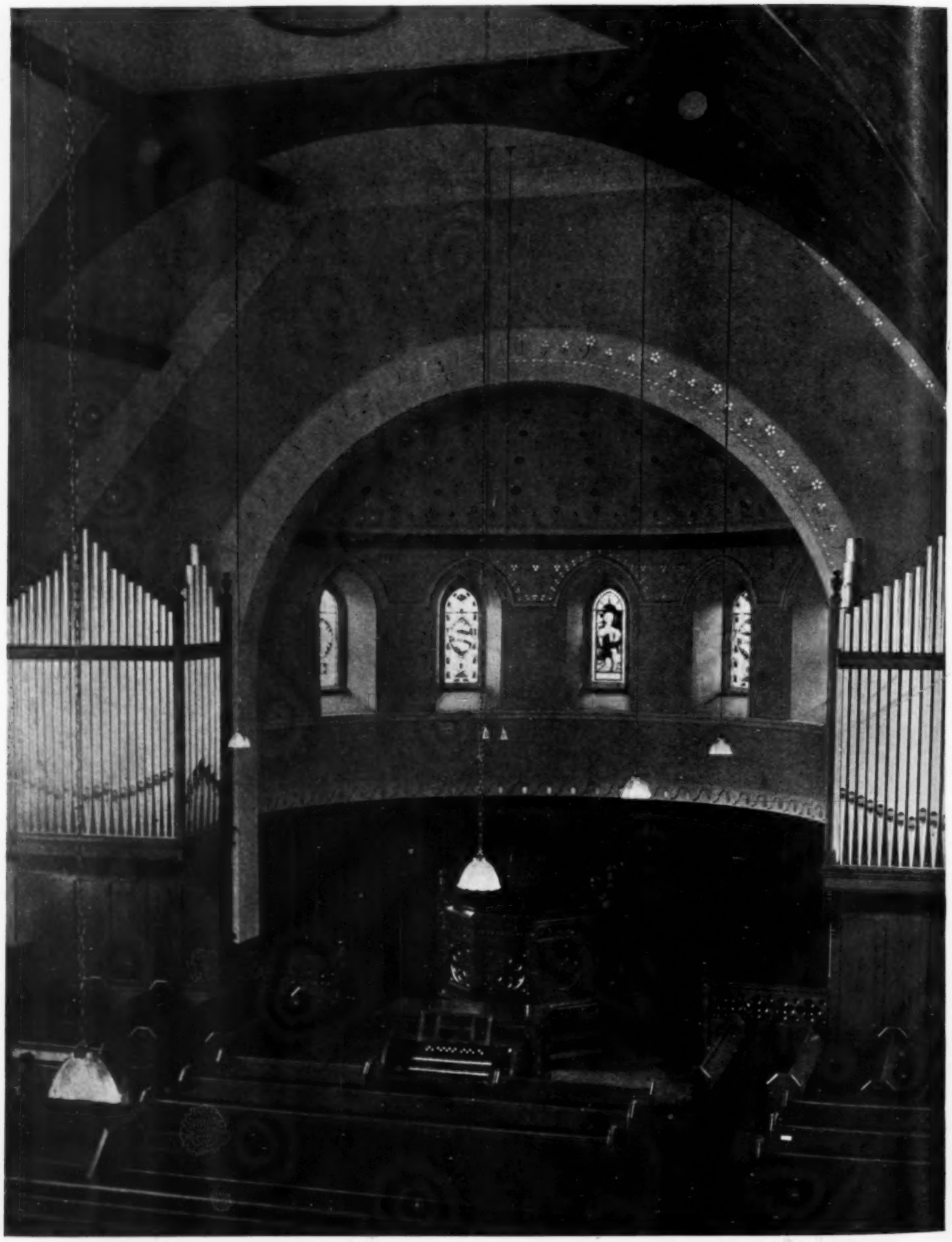
THE FOYER.

DETAIL OF ENTRANCE.

The Majestic Theatre, Retford.

MR. ALFRED J. THRAVES, F.R.I.B.A., Architect.

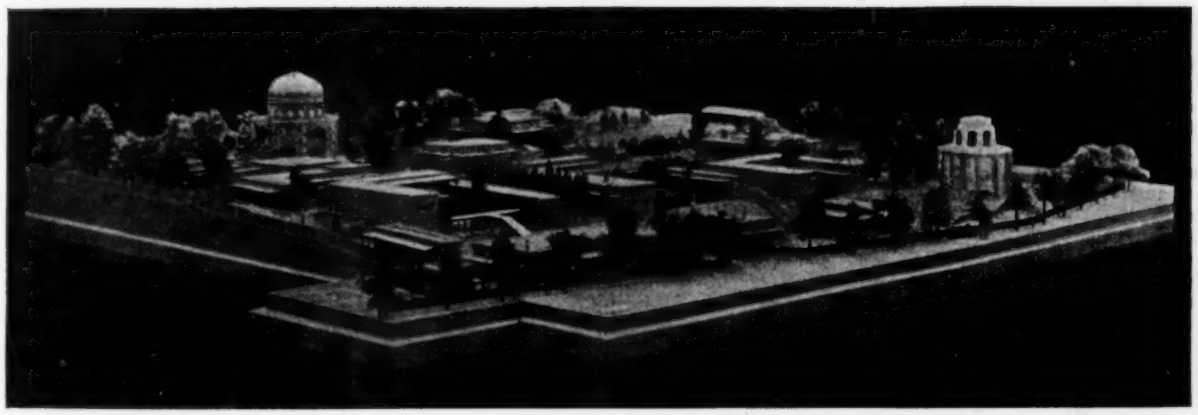
The Majestic Theatre, Retford : Auditorium from Circle.
Mr. Alfred J. Thraves, F.R.I.B.A., Architect.



Ladybank Church, Fife.

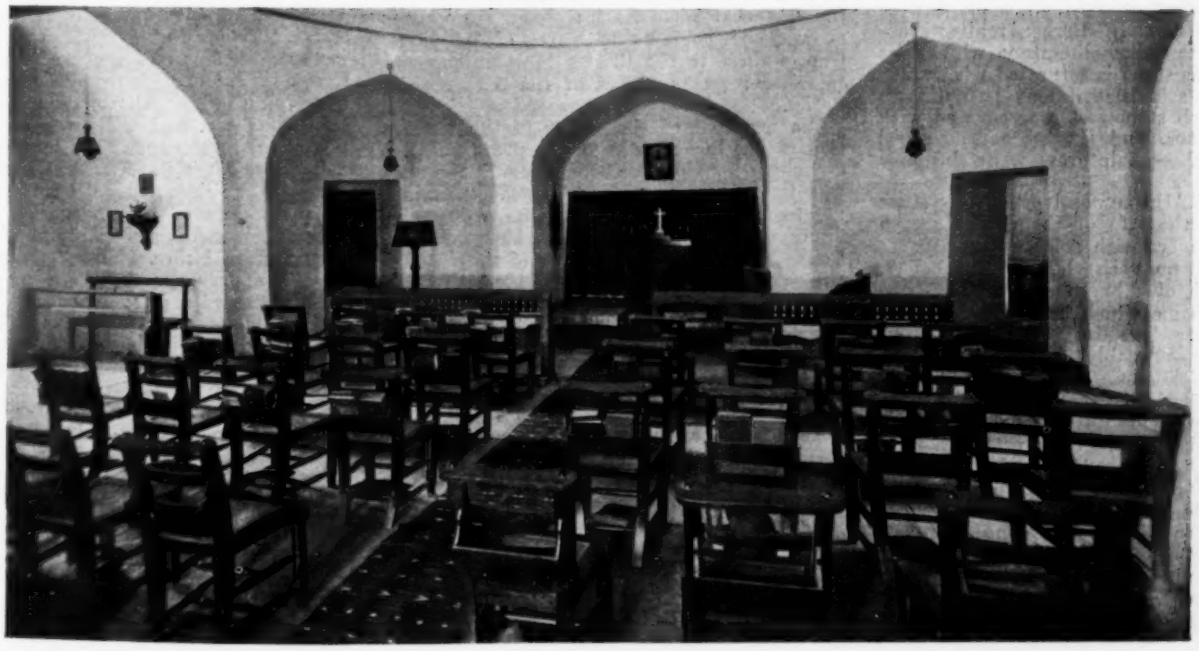
Decoration designed and detailed by Mr. William Davidson, F.R.I.B.A.

View of Tower.



Model by E. A. Flint.

Model of C.M.S. Hospital, Peshawar.



Interior of Chapel

The Tower (Said Khan's Burj) Peshawar, N.W.F.P., India, now used as C.M.S. Hospital Chapel.

THE PARTHENON AND EARLY TEMPLES ON THE ACROPOLIS*

BY W. R. LETHABY.

THIS is a clear and condensed account of the Acropolis with its buildings and the works of art found there by excavation. It is well illustrated by over a hundred photographic figures on about sixty plates and by many text blocks. The photographic plates we may suppose are the real basis of the book. The text is much of a competent compilation and in the main seems to follow the plan of Petersen's excellent little volume of 1908, while some points are adopted from the official guide book to the Acropolis Museum (Soteriades, 1912). In what follows I "review" to some extent the subject without confining myself to this particular volume.

The account of the pre-Periclean temples on the Athenian citadel is especially useful for English readers, as we have no authoritative work on them, and it embodies the results of the researches of Dörpfeld, Wiegand, Heberdey and others which are not widely known. A work that the late Professor J. H. Middleton had well advanced was unfortunately terminated by his death, except that some surveys were published by the Hellenic Society.

From the Mycenæan epoch the crest of the Acropolis rock was surrounded by a stone wall of "Cyclopean" masonry within which was built the palace of the ruler. "On the north side we find house walls; these cannot be anything else than a prince's palace. We can determine the character of this building from the bases of the columns and potsherds dating from the middle of the second millennium B.C." The bases just mentioned were plain circles of stone about 6 in. high and nearly 2 ft. in diameter, wrought in the same stones as square plinth blocks which were set level with the floor. I take these particulars from one of Middleton's notebooks now at Cambridge. He observed that they were "very similar to those of Mycenæ." Two were found about 10 ft. apart, possibly one pair of four in the Hall or *Megaron*.

In early days the special gods of the Acropolis were Athena and Erechtheus. The latter was "a demon in the shape of a serpent," who afterwards became a primitive hero rather than a god and was commemorated in the Erechtheum.

The earliest temples would have been of wood, and probably it was not until the beginning of the sixth century that stone temples were erected in Athens. These were what has been named "Poros Architecture" from the coarse yellow limestone which was used. "If this stone is saturated with water it becomes so soft that it may be cut with a knife." Such stonework was covered with very fine plaster, and the more ornamental parts with the sculptures were brightly coloured.

A temple of Athena was built of this stone about 560 on the site of the old palace in the Doric manner, with columns in *antis* at each end, but no peristyle. It was called, from its length of a hundred feet, the Hecatompedon, a name which has been found on an inscription. The length, according to Dörpfeld, was probably measured by the ancient foot of Ægina, 0.328 metre. A good account of Dörpfeld's reconstruction of the temple is given in Miss Jane Harrison's *Athens*, and Sir James Frazer discusses it in an appendix to his edition of Pausanias. The most remarkable of the painted decorations were storks and eagles, represented "displayed" in plan as if flying outwards on the soffit of the corona of the pediment; these alternated with large lotus blossoms. The lotus flower was a symbol of purity and sanctity, and the eagle, according to Dr. Cook, in *Zeus*, was thought to protect from lightning; the storks were probably an allusion to an ancient name of the Acropolis, *Pelargikon*, or place of storks. In the pediments were sculptures. It is recorded that marble tiles were first made by Byzes of Naxos, and it appears that the Athenians either sent for him or bought his tiles, for one piece with his initials has been found on the Acropolis. About this time the earliest marble sculptures were made in Athens.

The old poros temple was largely rebuilt about the year 520. Its cella walls were raised, and it was now surrounded by a peristyle of columns, six at each end and twelve at the sides. These are restored in the book before us as Doric. Penrose long ago suggested, in a paper in the *Hellenic Journal*, 1891, that these columns were Ionic, being represented by a large existing fragment of volute in poros stone, which must have belonged to a column not less than 4 ft. in diameter at the bottom (Fig. 1). Schraeder, also,

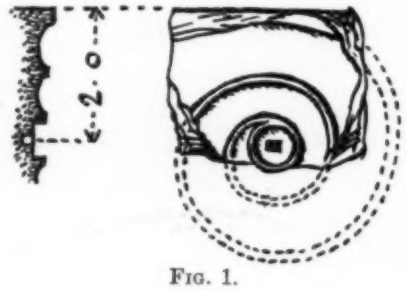


FIG. 1.

more recently argued from a study of the architectural and sculptured fragments that "when the peristyle was added the temple was changed from Doric to Ionic and the cella was heightened by adding an Ionic frieze." It has been suggested that the Ionic capital may only have borne a sculpture, and they were not used for early Attic buildings From sketches and notes by Middleton, it appears the capital must have been very large. He says, "volute 4 ft. in diameter," and his sketch shows that it was 3 ft. 10 in. from the face of the front volute to that of the back one. The whole capital cannot have been less than 10 ft. in length. I find support for Penrose's view in the fact that some sixth century Attic vases show Ionic columns as parts of buildings. One of these in the British Museum suggests in other respects echoes of the temple (Fig. 2, *D*).

We are told of the oldest of the temples that on the lower angles of the pediment were crouching lions or panthers, while at the apex was the grim figure of a Gorgon. "According to ancient Greek ideas, a terror-inspiring figure of this kind served to guard the sanctuary from evil spirits." One of the vases of the kind mentioned above, at the British Museum, has such a running Gorgon on the apex of the pediment (*A*), while another has two serpents in the tympanum. Now a pediment of the old temple was "filled right and left by two gigantic serpents (*C*)." Dr. Cook, in Vol. I. of *Zeus*, also illustrates a vase having a pediment with two similar serpents in it (*B*), and we may suppose that these details on the vases were derived from the temple.

The sculptures of the altered temple were of marble. In the centre of the east front was "Athena, the mistress of the temple, advancing with long strides and swinging her spear against a fallen giant." A large photographic plate of this group, given by Wiegand, is reproduced in the volume we are considering; it should be compared with the vestiges of one of the two central metopes of the east front of the existing Parthenon. Other victors in the old pediment were Zeus and

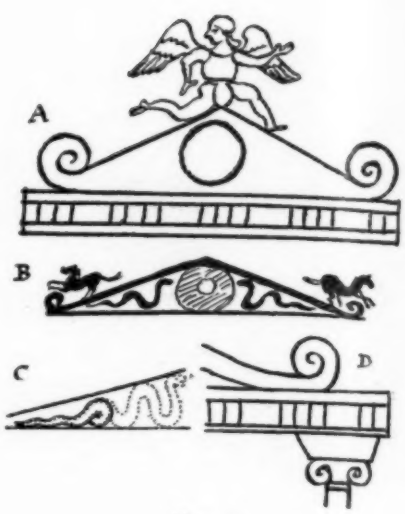


FIG. 2.

Herakles, and these also appear in the metopes of the Parthenon.

By enlarging and re-editing an old structure, a plan was reached of a temple, with columns in antis at both ends, completely surrounded by a peristyle. Thus, by a natural and economic procedure, not by a flight of daring original genius, the plan of the Parthenon of Ictinus and Pheidias was developed. It was ever so, sports and whims of design do not survive. It should be mentioned that this old Athena temple was maintained in being long after the Parthenon was rebuilt on another site.

It may be noted that an article by Dörpfeld on the Parthenon appeared in *The Builder*, 1882. An article in *The Builder* for April 6, 1889, which is almost certainly (with other Athenian notes about the same time) by Penrose, describes and gives diagrams of several of the capitals from the old temples. "We have now on the Acropolis an important series of early Doric caps of poros stone coated with gesso; they furnish material for an interesting study of the development of the order. . . . The earliest are of simple character, while they are all of about the same diameter they differ to some extent in the shape of the echinus, the annulets, and the shape of the flutings, of which there are twenty. Similar variations were found at Assos, so that this seems to have been a characteristic of the early age and shows a freedom from repetition which is interesting. We also find a few pieces of Doric pillar with spiral flutings [Fig. given]. This is the only instance we know of the use of this form in Greek times; enough remains to show that it has been a pillar with a diameter of 2 ft. 6 in. near the base, and with eighteen flutes. A piece under the capital has four incised rings [annulets] cut in it. From the slightly smaller diameter we may assume it to have been one of the pillars of the Pronaos. . . . We can now study the use of colour in the architecture and sculpture. Traces remain on most of the statues in the form of borders or stars scattered over the garments, also on the hair, lips, eyes, eyebrows, etc. The principal colours are deep vermilion, strong blue, bright olive green, with brown or yellow." How far the variations in the columns may have been in those of a single building I cannot say positively, but my impression is that variation was quite normal in earlier Greek buildings. We find it in the archaic Ionic temples of Naucratis and Ephesus.

The spiral column is especially remarkable. There is no doubt that it was archaic; Middleton also made a sketch of it and noted as follows:—"Fragment of column with spiral flutes outside Museum: coarse brown poros, similar drums have straight fluting." Spiral fluting is found in work of the Mycenæan age, and the column at Athens was probably in some way a survival rather than a new departure. The annulets (three) around the shaft at the level of the bed

* "The Acropolis of Athens." By M. Schede, translated from the German by H. T. Price. 12s. 6d. net. (B. T. Batsford, Ltd.)

joint under the capital are also in accord with archaic custom. Later, when the Parthenon was built, these annulets at the bed joint had disappeared, but the joint itself was very slightly splayed, or eased, differently from the other bed joints of the shaft. This difference has been a mystery to me, but it may not be doubted that it was a survival from the group of annulets. The workmanship of the archaic temples was very careful. Middleton noted that the jointing of the masonry was finely worked: "The bed under top course of the platform is of finest possible work dressed with wide-toothed chisels: the exposed face has marks of plain chisels three inches wide." Many of the fallen stones have rope tubes of this form ∪ cut into the beds, the openings being from 12 to 24 inches apart. The skin of fine plaster over the surfaces was very thin. Penrose calls it gesso.

About 500 B.C. a new and much larger temple was begun to the south of the Hekatompedon on what was to become the site of the existing temple, and this we may call the earlier Parthenon. This structure was to have been almost as large as the present later Parthenon.

Evidence for the existence of such a temple was observed by some of the early travellers. Leake considered the question and rightly suggested that this older structure would have had six columns at the ends. He thought that ancient fragments in the Acropolis wall would have belonged to it. Penrose made a more systematic study of the evidence (*Athenian Architecture*, 1851, revised 1888). He has a section entitled "On the Remains of an Earlier Temple on the Site of the Parthenon," and he gives a plan having a peristyle of 6 by 16 columns. He wrongly associated fragments of a poros stone entablature in the Acropolis wall with this temple, but rightly assigned drums of marble columns to it, and remarked that "we must suppose that they were prepared previous to the Persian siege with the intention of rebuilding the temple more magnificently."

The resemblance between the dimensions of the remnants of the earlier building and the existing Parthenon was pointed out. Watkiss Lloyd suggested that a marble relief of a chariot group formed part of a frieze on the projected building.

Following the recovery of the plan of the Hekatompedon by Dörpfeld in 1887, this scholar was able to assign the poros stone fragments to that still more ancient structure, reserving only the marble drums for the earlier Parthenon. The foundations were more fully explored in 1888, and Dörpfeld made a restoration of the temple with 8 by 19 columns in the peristyle.

Messrs. Dinsmoor and Hill (*c.* 1910) found more positive evidence to go on in the antae bases actually in position under the later pavement (*American Journal of Archæology*, Vol. XVI, 1912). It appeared that it had 6 by 16 columns in the peristyle and four columns at the ends in a second row. These latter were not in antis but were arranged exactly as in the later Parthenon. The incomplete structure, with the scaffolding about it, was burnt during the Persian occupation of Athens and the fragments bear evidence of the fire.

The wish may here be expressed that some English student will take up Parthenon researches, resuming a tradition that has been broken since about 1900. An account of the development of Greek building as made known by the fragments found on the Acropolis would not only have the interest of scholarship but it would do something to dissipate the myth that there ever were settled rules of form and proportion constituting what we in our superstition have liked to call an "Order of Architecture."

A generation after the Persian defeats at Salamis and Platæa (479 B.C.) Pericles and Pheidias were planning the later Parthenon begun in 447.

The plan of this most famous building in the world was conditioned by the older masonry platform, which was enlarged, and it was practically a copy of the destroyed building, but instead of having six columns on the fronts there were eight. Dinsmoor and Hill point out that "when the present Parthenon was planned it was made in many dimensions precisely the same as the older temple so that blocks from the latter not too much injured might be re-used in the building." Thus we find once more that masterpieces of building were no dreams by a genius but work done according to custom in an economic manner.

The Propylæum, Erechtheum, and other buildings on the Acropolis are described and illustrated in Herr Schede's volume. Among those buildings is the little circular temple dedicated to Rome and the Emperor Augustus which was erected in front of the eastern end of the Parthenon. In this little work the "order" of the Erechtheum was imitated, indeed the builders "copied" its ornamental details exactly. I refer to this especially, as we have in the British Museum the upper drum of a column which, as I suggested 20 years ago, must have come from this elegant little edifice. It is catalogued under the heading "Architecture of the Erechtheum," and it still bears an old inscription which only says "420, Necking of column copied from east portico of the Erechtheum." The information given at our great Museum should be revised more frequently.

Some small points in the book I have been discussing may be mentioned which seem to be errors. We are told that the lions' heads at the angles of the Parthenon and the earlier temple were water spouts, but this I think is a mistake. The four columns in the episthodomus of the Parthenon cannot have been Ionic. In the plan which is given they are shown about as big as the columns in antis and such large shafts can only have been Doric. The internal colonnade of the cella more probably had columns at the angles than square piers as shown (see Penrose). The figure of Demeter in the frieze is misnamed Artemis. The translation reads a little awkwardly in places, while here and there some mistakes may be discerned, thus, on page 11 we read that "the fortress was encircled by a round wall," and on page 68 we find "coping bricks" for what must be covering tiles of marble.

The sketches in the text are suggestive, but some features seem exaggerated. Fig. 13 shows the acroterion on the apex of the pediment of enormous size, some 13 or 14 ft. high, that is, taller than the field of the pediment and about equal to the dimension of a columniation. Ornamental acroteria at lower angles are accepted.

"THE BUILDER" DEBATE

Minimum Salaries.

SIR,—I have only just read your correspondent "Positive's" article on this subject in your issue of 10th ult. Personally, I have heard much on this subject during recent years, and have never been convinced of its practicability, although more or less convinced of its justice. After reading "Positive's" article I feel that he set himself out to oppose the proposition without examining his own arguments, for those which he uses fail utterly to convince one who is open to conviction one way or the other. If opponents of the scheme cannot produce sounder or less retrograde arguments in support of their case, it goes far to suggest that their minds are more influenced by prejudice than facts.

What earthly good is served nowadays by trying to tell any man that what is earned in another walk of life is no concern of his? Did the then Prime Minister attempt to use such an argument during the police strike when level-headed, responsible police officers produced evidence to him that their earnings were less in some cases than those gained by their own daughters in other walks of life? Of course not! The architect is for ever comparing himself with his neighbour the doctor, the bricklayer with his neighbour the carpenter, and so on. It is natural and only human nature. I will undertake to say that your correspondent, whoever he is, does so and has done so all his life.

Later, in his argument he says that the architect's Scale of Fees is not designed to keep away starvation, but to maintain the standard of architecture—and then cuts off short this paragraph by saying that assistance can look after itself! Anyone reading his words regarding the architect, and having the subject matter of his article in mind, naturally immediately applies the argument to assistants, only to find that your correspondent has carefully dodged such an application. Without agreeing or disagreeing with his remarks as to the Scale of Fees, it is obvious that if a Scale of Fees achieves or tends to achieve the object of a high standard in the one case, it would equally do the same thing in the other case; if not in one, then not in the other.

The great majority of members of the Royal Institute, to say nothing of "outsiders," are assistants, and unless they have money or influence will remain so all their lives. Ambition does not enter into it, except that where great ambition exists so much greater will be the mental anguish and bitterness when later it is found that ambition gets further from achievement as the years pass.

H. S. A.

SIR,—I asked "Positive" to state his reasons why the architectural assistant should remain forever outside the pale of social reform, and in reply he indulges himself in about nine prophecies. Let us confound them one by one:

(1) Assuming a "free and unrestricted market" for "Positive's" services as a principal, and no scale of professional charges—no minimum or even a standard fee—the experience of industrialists combating the same situation in prices has proved that the level of charges falls to that of the lowest. This is precisely the reason why assistants require an arbitrarily fixed minimum. (2) Assistantship *is* a career. Why else should 60 per cent. of the profession be assistants? (3) What about the training a practising architect gets when he accepts his first, say, hospital job? (4) We do not accept the plea that a shopkeeper is not earning enough to keep an assistant at a certain minimum enforced by employees and employers through wage agreements. Why should the architect then get "cheap labour?" (5) "Positive" now calls his "inefficient" assistants, "men of limited capabilities." Let us rid our profession of incompetent members, of men who cannot earn a minimum salary. We carry this burden to-day because they keep architects supplied with a cheap labour market. (6) Lads are tempted to join the profession *now*, under false pretences. They are told that private practice crowns ability, courage and perseverance, which is false. Fortune and influence play the major role in this act. (7) I cannot believe that good architects will refuse to avail themselves of any necessary assistance because they will have to pay a reasonable salary. Besides, a more efficient assistant means better work, speedier work, less supervision, and, consequently, less staff. (8) How can goodwill, established by a knowledge on both sides of fair dealing, be jeopardised by a minimum salary? A minimum salary will be a guide to assistants, which will dispel any suspicion that their individual position is being exploited. It is the employer's public guarantee of his fair treatment of his staff. (9) "Distress" is a word upon which it is impossible for us to agree. Distress to me seems possible when assistants' services are exploited at the salaries mentioned by "Positive," and when incompetence is encouraged to keep salaries low, and "Positive" knows this quite well. Minimum salaries means a fair deal, to principals and assistants.

NEGATIVE.

PRESERVATION OF ST. PAUL'S CATHEDRAL

Sir,—I am glad to see from his last letter that "Inquisitive" now agrees with me on several important points of principle in connection with the examination and repair of St. Paul's Cathedral, but it is unfortunate that he remains so far at sea in regard to matters of fact. He tells you that he has "illustrated comparative diagrams of the building as it is, and as Mr. Harvey apparently believes it to be." Now this is exactly what he has not done, and in answer to my request that he should produce a reliable section on the line of the great pier he replies, "it seems unnecessary for me to pursue the matter further." Nor does he respond to my invitation to sign his name.

Where detraction is concerned, "Inquisitive" shows himself busy, but his energy flags when serious investigation is proposed. I have shown in my former letters that every one of "Inquisitive's" pseudo-geometrical drawings contains grave errors in draughtsmanship, favourable to his own point of view, and that his sections are not even taken on the line of the great pier. He has confessed his motive in issuing this attack upon my book "The Preservation of St. Paul's Cathedral" to be due to a desire "to tread on the tail of my coat," and that is exactly what it amounts to. Not an atom of serious regard for the safety of the Cathedral is to be discovered under all his array of misquotation and false deduction, his parade of inaccurate figures, and his comic diagrams.

If he were really interested in the preservation of St. Paul's Cathedral he would take some pains to find out the real facts as to the dimension for the overhang of the inner drum over the face of the pier instead of showing it on his different diagrams first as one foot, then as two feet, and then again as one foot six inches, and quibbling in his text as to whether it is two feet five or two feet nine inches. He now overreaches himself altogether in his statement, "It is obvious from these plans" (his own precious productions) "that the inner drum does not stand out over the void as Mr. Harvey claims." Such a series of distortions needs no comment from me.

"Inquisitive" has taken the needless trouble to point out that the photographs mentioned in my last letter and republished in my book happen to be old ones borrowed from various sources, but what has that to do with the argument in hand?

"Inquisitive" had reiterated in his letter of February 3 the comforting old platitude to the effect that the principal settlements "arose before the arches were built," and my reference to the photographs on pages 9, 10, 62, 65, and 85 had reference to this alleged movement of two hundred years ago. To demonstrate that my illustrations are too old to refute this ridiculous theory, it would be necessary for "Inquisitive" to prove them as old as the piers and a trifle older than the arches; that is to say, he would have to prove them older than their own subject matter, and also older than the invention of photography.

But "Inquisitive" was not thinking of the argument, and had probably found it convenient to forget his own ridiculous statement about the piers settling most before they were loaded. There is no connected line of thought in his effusions, and a little further on in his last letter he quotes with apparent approval Mr. Somers Clark's statement that the most likely cause of settlement is "the difference in weight between the inner and outer drums." This lapse into common sense on "Inquisitive's" part is all the more precious for its rarity, and it is interesting also on account of the fact that my book draws attention to the unequal loading and settlement, though the St. Paul's Commission attributed the cracks in the parts shown in the illustration to "cumulative temperature stresses rather than to unequal settlement." (See page 133 of my book.) It was unkind of "Inquisitive" to contradict his friends the Commission in this way, after going to such lengths in their praise and support. The question of causes of settlement is discussed in my book, and the illustrations mentioned above should be consulted by any student who is interested in the analysis of causes of decay in old buildings, or who wishes to determine whether Mr. Somers Clark or the St. Paul's Commission is in the right.

"Inquisitive" repeats a statement that has been made by the Cathedral authorities to the effect that the scheme of repair is comprehensive in character and continuous in its application, and asserts that "The comprehensive scheme for the preservation work was drawn up by Messrs. W. D. Caröe and Mervyn Macartney in March, 1914, after a detailed examination of the Cathedral . . . The work now in hand is the direct outcome and continuation of the general scheme."

Such a claim cannot be established in the light of the facts. Repairs, of a sort, have been proceeding ever since the erection of the building, but the nature of the operations has varied very considerably under different surveyors, who have estimated the needs of the structure differently in accordance with their powers and opportunities for interpreting the symptoms of decay, and have executed works in accordance with their capacity for making their knowledge acceptable to the Deans and Chapters of their respective periods. In recent times, for example, the use of shoring has been approved, discarded, and approved again in response to changing views as to the needs of the case. Continuity of constructional policy has been conspicuous by its absence. The constant element which affects the conservation of any church is the very natural objection of the clergy to any form of repair work on a scale comprehensive enough to interfere with the services, and at St. Paul's Cathedral the pressure of this consideration was allowed to affect the programme of repairs published in the St. Paul's Commission's Second Interim Report. As far as I was concerned, it was the proposal to execute repairs piecemeal "without serious disturbance to the services" rather than Mr. John Todd's Dangerous Structure Notice that convinced me that public criticism of the Commission's scheme would be necessary.

The difficulty of realising what is wrong with St. Paul's is quite sufficiently acute when the Cathedral is regarded as a whole, and the limitation to piecemeal repair naturally had a cramping effect upon the mental grasp of those engaged in the examination of the building under such adverse conditions.

Analysis of such a vast and complex structure is no light task, and the importance of certain symptoms of decay may only be grasped after years of keen research, so that a Surveyor to the Fabric is likely to grow old in the service of the Cathedral and is on the point of retirement by the time he is thoroughly familiar with its structural character. The late Mr. Somers Clark complained that he could not make people understand the danger in which the building stood because its recent cracks were small and did not let daylight into the building. He executed certain repairs during his term of office, uttered his warning, and retired to Egypt. His experience of the building and his personal knowledge of its arch-thrusts could not be expected of his successor during the early days of his Surveyorship, and as he in turn grew more experienced, the introduction of new members and the formation of a Commission involved a return to starting point.

So far from any exhaustive survey or comprehensive scheme having been prepared, the Commission had to report "an absence of precise data," and that observations had not been continuously carried out in connection with known fractures in the masonry where movement had been observed. (See the St. Paul's Commission's Final Report, page 126, of "The Preservation of St. Paul's Cathedral.")

I instanced in my book (page 96) the fall of the Campanile at Venice while undergoing repair at the hands of architects of experience, and pointed out the difficulty that is imposed upon the resident Surveyor of any great monument in deciding when "the normal routine of minor patchings must be abandoned . . . and a far-reaching scheme of major works substituted for it." Chichester Cathedral spire and central tower also collapsed with unexpected suddenness while under observation by a famous architect.

"Inquisitive" has attempted to insinuate that my criticism is an attack upon certain persons, but nothing could be farther from the facts. The conditions under which a gigantic building like St. Paul's exists present natural obstacles to complete understanding of all factors, and my knowledge that I was in a position to understand some of the causes of danger, made it imperative that I should proclaim them in an unmistakable manner, and at as early a date as possible. I had seen the best of Portland cement grouting fail in cases where severe eccentric loads and arch pressures were concerned, and knew that grouting, without tensile reinforcement, as proposed by the Commission (Second Interim Report, page 40 of my book), would be useless and deceptive. It was quite possible that the experimental grouting operations might end in disaster (see page 137, "The Preservation") and it was out of the question that I should delay an urgently needed warning until I was prepared with neatly executed drawings which might take some months or years in the making. My drawings and photographic illustrations were gathered together from many sources, and my own sketches compiled to indicate dangers and to illustrate principles of repair are not measured drawings, nor is there any reason to suppose them such. "Inquisitive" has taken one of these sketches, examined it minutely with the aid of a magnifying glass, and has applied a scale to it, when no scale was given. Such criticism would be somewhat severe, even if carried out faithfully, though I would welcome comparison with a properly drawn section, and had given minute instructions in my book for the making of such an accurate survey with every deflection from the vertical properly recorded. When such a section is made, the important warning indicated in my little sketch will be understood, but, as we have seen, "Inquisitive" declines to pursue the matter further, and tries to insinuate that it is my duty to make measured drawings for the custodians. If he really thinks that they need my assistance, he must first persuade them to remove the ban that they have imposed upon critics visiting their works. Actually, it seems to me that the custodians have the right and the means to make their own survey and perfect their own knowledge in their own way; I have done my best to assist them as far as general principles are concerned, and have cause to believe that my intervention has been useful.

But while I am prepared to leave my sketch diagram to tell its own story in any just comparison with a properly drawn section, and am confident that its meaning will become apparent, it is not possible to accept "Inquisitive's" diagrams as fair comment or just comparison. It is quite obvious that my sketch is a freehand sketch and that it is taken on a tangential section line, and also that it represents the most formidable case of eccentric loading, yet "Inquisitive" purposely compares it with sections on radial lines, which show a lesser overhang, and takes them i places which will not show the eccentric loading at its most acute application. Then, by incorrect draughtsmanship, he minimises the apparent overhang and produces figures and calculations based on his own "mistakes." No wonder he prefers to remain under protection of an assumed name.

"Inquisitive's" assertions that no movements have taken place in the building during the last twenty years is ridiculous, for, a month after I had pointed out that the building was gradually bursting outwards, the St. Paul's Commission gave particulars of recent movements revealed by the observations undertaken by them in the course of their inspection of the building. These particulars are given on pages 129 to 131 of my book. They are by no means complete, for, at the time of the publication of the Commission's Final Report, its survey was still unfinished, and some of the more obvious fractures had not yet received attention from the Commission, though my inspection of them had enabled me to realise the need for tensile reinforcement, and to publish proposals for its insertion at a time when the Commission was only prepared to patch and grout.

To set against "Inquisitive's" statement that my view of the danger to the building was formed after Mr. Todd's issue of his Dangerous Structure Notice, I may refer to my article, "Sir Christopher Wren—Architecture and Construction," in THE BUILDER, March 2, 1923, in which I wrote: "Wren's own pronouncements upon the principles of building construction make it clear that he viewed any excess of material above what was absolutely necessary as a needless and unphilosophical waste, and in carrying his theory into practice has sometimes approached perilously near to the minimum. His buildings are preserved by force of the designer's knowledge and not by their bulk, a circumstance which, while it makes them intensely interesting to the student, creates a problem of extraordinary difficulty for the custodians who are called upon after two hundred years of wear and tear, to conserve these monuments with the least possible introduction of new work," and in the same article in reference to the threading of the aisles between piers and bastions: "It may be argued in regard to lightness as contrasted with heaviness of construction, that discretion is the better part of valour, and that after the brute mass has been bought and paid for it is likely to remain intact longer than the building that depends upon the interplay of lighter members, even if greater art is shown in assembling them." The whole article recognises the skill with which Wren has piled up his towering mass of central domes, and also mentions several of the defects in the structure consequent upon the eccentric and excessive loading and unequal settlement. It was written two years before my inspection of the building was terminated by the intimation that the custodians "deprecated outside intervention," and before the publication of the inadequate Second Interim Report demonstrated the need of putting similar ideas into more vigorous form as a warning that more comprehensive repairs would be needed.

"Inquisitive" affects to be shocked at my inconsistency in not giving anything better than sketches as illustrations in my book, but he chooses to ignore the fact that one of my measured drawings illustrated in it (page 141), has just been hailed by Mr. Powys, secretary of the Society for the Protection of Ancient Buildings, as "The best diagrammatic survey I have seen," (THE BUILDER, January 13, 1928, p. 54) and that the analytical model shown on page 111 of my book is being used in technical colleges as a means of solving problems in structural mechanics that elude solution by trigonometrical calculation.

"Inquisitive" has not followed the recent progress of scientific analysis and repair of ancient buildings, but he need not suppose that other people are necessarily as backward as himself. He has flattered my sketch by pretending to imagine it a measured drawing, by discussing a small pocket book produced to and my preliminary inspection of the Cathedral by calling it a "survey," and generally, meet an emergency, as if it had been prepared for sale at five guineas instead of five shillings. But his ironic compliments cannot disguise the fact that already several of the devices proposed by me have been since found necessary for the safety of the building by its custodians and adopted by them in spite of the fact that each feature added to the original programme shows with additional clearness how dangerously inadequate that programme must have been.

Since I first pointed out the need, the custodians have inserted, or are about to insert: (1) Reinforcement in the piers; (2) Reinforcement to bind piers to bastions; (3) A gigantic chain to encircle the drums of the dome. They are also continuing to survey the building, are using models, and have consulted the National Physical Laboratory as to various details of the work, as I suggested.

As time progresses other features of my scheme, so much despised by "Inquisitive," will be found necessary and will be adopted in turn. Already there is talk of some "bracing of the drums of the dome," and as the defects in the building are traced by the custodians they will realise that they must control the outward movement of the external walls by reinforcement, or the piers will be deprived of their proper abutment. That is to say, these things will be realised in course of time if the building waits patiently for the custodians to make up their minds. They are not yet out of the wood. I have seen structures collapse, when minute bulges and cracks, too small to be visible to the "Inquisitive" eye, change into gaping fractures in a few moments. No intermediate warning is to be expected, for the forces that have sheared one stone are capable of shearing another and another in quick succession. It is unsafe to trust to optimistic platitudes such as are contained in "Inquisitive's" last letter, and the only sound course is to obey the cardinal principle of conservation.

WILLIAM HARVEY.

MONK BRETTON PRIORY, YORKSHIRE.

THE Barnsley Corporation recently undertook to acquire from Mr. J. Vincent Horne, of Monk Bretton, certain lands containing the ancient Cluniac Priory of Monk Bretton. An account of this building and its history, written by Dr. J. W. Walker, F.S.A., recently appeared in the Transactions of the Yorkshire Archæological Society, and consequently a considerable amount of interest was aroused when it became known that the Barnsley Corporation contemplated the purchase of the remains. By an indenture between the vendor and the Corporation, it was agreed that the price should be determined by the Official Arbitrator, under the Lands Clauses Act. The inquiry was opened on Friday, February 24, in the Council Chamber of the Town Hall of Barnsley. Mr. W. P. Donald, barrister, instructed by Messrs. Bury and Walkers, of Barnsley, appeared for the vendor, and Mr. W. Stewart, barrister, of Leeds, instructed by Mr. A. D. Mason, the Town Clerk of Barnsley, represented the Corporation.

Mr. Donald, in opening the case, indicated the vendor's view that the land itself was worth £8,700. The value of the buildings for farming he put at £1,088. Beside this, there was special value attaching to the archæological remains. Monk Bretton Monastery was one of the earliest of its kind in the country. The gift of the land dated from the year 1153. Discussing the value of the monastic ruins, counsel said that a useful example for comparison in price was Whalley Abbey, near Blackburn, in Lancashire, one part of which was sold to the Roman Catholic Bishop of the diocese and the other half to a Church of England Diocesan Society. The total of those two sales amounted to £24,500. Prior to 1914, little was known about Monk Bretton Priory. Mr. Horne, after buying the farm, discovered the buried portion and carried out excavations at a cost of between £600 and £700. After that work had proceeded for some time, he secured the interest of the Yorkshire Archæological Society, who spent some £200 in carrying on the excavations. On behalf of the vendor, counsel contended that the value of the archæological interest in the remains was £11,000, making the vendor's claim a total of £20,820.

In cross-examination by Mr. Stewart, Mr. J. V. Horne said that he and his brother bought the monastic ruins and gatehouse, with 68 acres of land, in 1914, from Sir George Wombwell for £1,150. A further 7 acres of land, included in the land now bought by the Barnsley Corporation, he bought in 1919 for £161. In re-examination, Mr. Horne said that in 1914 the land was merely of agricultural value. As soon as the omnibus service began, the land developed immediately.

Mr. G. H. Wilby, valuer, of Barnsley, gave evidence in support of the valuation of lands submitted by the vendor.

Mr. Stewart, in cross-examination, indicated that the Corporation's view was that the reasonable price for the land was £1,764 instead of the £8,700 claimed.

Mr. John Swarbrick, F.R.I.B.A., of Manchester, hon. reporting architect to the Ancient Monuments Society, gave evidence of the value of such historical monuments as Monk Bretton Priory. Interest in such remains was, he said, increasing every year. Attention was called to the manner in which Americans had acquired ancient structures, such as Warwick Priory, Agecroft Hall, and others, and transported them to the United States for re-erection. Witness supplemented his evidence by particulars regarding the prices paid in recent years for sites containing the remains of monastic buildings. The case of greatest interest and of most similarity to Monk Bretton was probably that of Whalley Abbey, in Lancashire, which was sold a few years ago to two separate purchasers at a price that revealed the fact that a very considerable sum per acre had been paid over and above the ordinary commercial value of the site, for what could alone be attributed to historical and religious interest.

Comprehensive lists of monastic buildings used for ecclesiastical, domestic, and farm purposes were submitted. Accepting the case of Whalley Abbey as the one that presented the most points of similarity to that of Monk Bretton, witness showed how the corresponding value at the present time of a sale of the Monk Bretton Priory would be a sum of £14,800. Witness, however, pointed out that it was quite possible that such a sale might not occur for six years, and accordingly deferred the value on the 5 per cent. table, placing the present value, in the event of such a sale, at £11,000 in respect of the purely historical interest of the Priory site, over and above the merely commercial value of the land and buildings.

On cross-examination, Mr. Stewart suggested to the witness that the limit of the sentimental value of the priory was not a penny more than £500.

The hearing was resumed on Saturday, February 25, when the hearing of the evidence of the District Valuer, Mr. Kaye, and Mr. C. G. Fox, architect, of Halifax, was heard on behalf of the Barnsley Corporation. Mr. Fox said he could not possibly conceive anyone paying £11,000 for the historical value of the buildings. He put the sentimental or historical value at £500. In cross-examination by Mr. Donald, Mr. Fox agreed that the owner had paid a sum considerably in excess of £500, in connection with the excavation of the remains.

Mr. Donald said it would be possible for the Americans to transport and erect in America the gate-house, the guest-house, and the prior's house. The guest-house was the most perfect example of its kind in Great Britain.

Mr. Stewart argued that, while the Corporation were not unwilling to pay a fair price, the ratepayers should not be asked to pay a penny more than the ruins are worth.

THE ARCHITECTS (REGISTRATION) BILL

Following is the substance of the Architects' (Registration) Bill, which is having its second reading in Parliament to-day (Friday).

Clauses 1 and 2 relate to short title and interpretation respectively. Clause 3 relates to the setting up and maintenance of a register of architects by the R.I.B.A. Clause 4 relates to the appointment of officers.

Persons Entitled to be Registered Without Examination.

5.—(1) The following persons shall, on making application to the Council and on payment of the prescribed fee without any other qualification being required under this Act, be entitled to be registered, and the Council shall cause their names to be entered in the Register:—

(*a*) Architect members of the Royal Academy and of the Royal Scottish Academy;

(*b*) Every person who has gained a degree or diploma in architecture from any university in Great Britain or Northern Ireland or from the Architectural Association, London;

(*c*) Every person who at the passing of this Act is or has been in bona-fide practice as an architect;

(*d*) Every person—

(i) who was for a period of five years immediately prior to and is at the passing of this Act a bona-fide architectural assistant; or

(ii) who subsequently to the passing of this Act has completed a period of five years (one year at least of which period shall have been prior to the passing of this Act) as a bona-fide architectural assistant.

Any period during which any such architectural assistant has been engaged as a pupil to an architect or has been a student in a school of architecture recognised as such by the Council shall be reckoned as part of such period of five years:

Provided that applications for registration from persons referred to in paragraphs (*c*) and (*d*) of this sub-section must be made within a period of five years from the passing of this Act.

(2) If any question arises as to whether any person is or is not entitled to be registered under paragraphs (*c*) and (*d*) of this section such question shall be referred to and determined by the Admission Committee, hereinafter in this section mentioned, after inquiry at which the person concerned shall be entitled to be heard and on the Admission Committee reporting to the Council that such person is or is not entitled to be so registered, the Council shall thereupon inform such person in writing of the decision of the Admission Committee and shall enter or refuse to enter his name in the Register.

(3) For the purposes of this section there shall be appointed annually an Admission Committee consisting of twenty-four persons, one to be nominated by each of the twelve bodies specified in the Second Schedule to this Act and twelve persons to be appointed by the Council, of whom ten persons shall be members of the Institute, one person shall be nominated by the Incorporation of Architects in Scotland, and one person shall be nominated by the Ulster Society of Architects (Incorporated). The Admission Committee shall continue in existence for such period as may be necessary to deal with questions arising under sub-section (2) of this section.

Council to Prescribe Future Qualifications for Registration.

6.—(1) The Council shall from time to time by regulations prescribe the qualifications necessary for registration in respect of persons other than those referred to in the immediately preceding section of this Act, and any person possessing the prescribed qualifications shall, on making application to the Council in the prescribed manner and on payment of the prescribed fee, be entitled to be entered in the Register.

(2) If on the advice of the Board of Architectural Education (in this Act called "the Board") constituted for the purposes of this Act in manner prescribed in the First Schedule to this Act, and to be appointed annually by the Council, the prescribed qualifications include the passing of any examinations, the Council shall provide for the holding by the Board of such examinations at least once in each year and at such times and places as the Board may prescribe. The Council shall recognise as examinations under this section examinations, the passing of which is or may be recognised for exemption from the final examination of the Institute, and on the advice of the Board the Council shall recognise as examinations under this section examinations for the time being organised and held at any school of architecture: Provided always that recognition of examinations once accorded by the Council shall not be withdrawn without the approval of the Privy Council.

Removal of Name from Register.

7.—(1) If any person registered under the provisions of this Act shall be convicted of felony or misdemeanour, or after an inquiry held as hereinafter provided be judged by the Discipline Committee, hereinafter in this section mentioned, to have been guilty of any conduct disgraceful to him in a professional respect, the Council shall, if the Discipline Committee so request, cause the name of such person to be removed from the Register, either permanently or for such period as the Discipline Committee think fit.

(2) For the purpose of holding any inquiry under this section as to whether any person registered under this Act has been guilty of any conduct disgraceful to him in a professional respect and at which inquiry such person shall be entitled to be heard, there shall be appointed annually a committee to be called "the Discipline Committee," consisting of seven members, three members being persons registered under this Act to be appointed by the Council, one member appointed by the Minister of Health, one member appointed by the president for the time being of the Law Society, one member appointed by the Incorporation of Architects in Scotland, and one member appointed by the Ulster Society of Architects (Incorporated), and the Council shall convene a meeting of the Discipline Committee from time to time whenever necessary to hold any such inquiry.

Clause 8 relates to restoration of name removed from register, Clause 9 to giving notice by Council of refusal to register or of removal of name from register, and Clause 10 to appeal against refusal to register or removal of name from register.

Use of Title.

11.—Any registered person shall be entitled to take and use the name or title of "registered architect" or any style containing the words "registered architect," but a person shall not practise in Great Britain or Northern Ireland under any name, title or style containing the words "registered architect," unless he is a registered person, and any unregistered person who so practises or wilfully pretends to be a registered person, or takes or uses the name or title of a registered architect or any name, title, style or description implying that he is a registered person, shall on summary conviction be liable to a penalty not exceeding fifty pounds for the first offence and one hundred pounds for every subsequent offence: Provided that, subject to the provisions of this section nothing in this Act shall prevent any local authority or person performing any act or operations in connection with the construction of buildings which such local authority or person was entitled to perform prior to the passing of this Act: Provided also that nothing in this section shall affect the validity as between contracting parties of any act of any person under any customary form or conditions of a building contract.

Clause 12 relates to change of address, etc., Clause 13 to penalty for obtaining registration by false representation, and Clause 14 to prosecutions which may be instituted by the Council.

Power to Make Regulations.

15.—(1) The Council shall from time to time make regulations—

(*a*) Prescribing the fees to be charged in respect of the entry of any name or other particulars on the register and in respect of the retention in any year of the name of any person on the register, the fees to be paid by candidates for any examinations held under the provisions of this Act, and the charges to be made for copies of the register and of any regulations made under the provisions of this Act and of any forms prescribed by such regulations: Provided that such fees and charges only shall be prescribed as shall be not more than reasonably sufficient to provide for the expenses of the Council in the execution of this Act so far as the Council can estimate the same;

(*b*) Prescribing the manner in which application is to be made for registration under this Act, including the form on which such application is to be made and the information to be supplied thereon;

(*c*) Generally for carrying out or facilitating the purposes of this Act:

Provided that no regulations relating to the powers and duties of the Board or the Admission Committee shall be made by the Council without consultation with the Board or the Admission Committee as the case may be.

(2) No regulations made under this Act shall be of any force or validity unless and until they have been approved by the Privy Council, and the Privy Council shall, before giving their approval, cause the regulations to be published and give interested persons an opportunity of being heard thereon.

Clause 16 relates to supply of regulations and forms, and Clause 17 to service of notices by post.

Saving for Co-operative Societies, etc.

18.—Nothing in this Act shall prevent a body corporate firm or partnership from carrying on the professional business of a registered architect—

(*a*) If the business of the body corporate firm or partnership so far as it relates to architecture is under the control and management of a superintendent who is a registered person and who does not act at the same time in a similar capacity for any other body corporate firm or partnership; and

(*b*) If in every premises where such business as aforesaid is carried on and is not personally conducted by the superintendent such business is *bona-fide* conducted under the direction of the superintendent by an assistant who is a registered person.

Saving for Other Bodies.

19.—The provisions of this Act, other than the provisions of the section of this Act of which the marginal note is "Use of title," shall not unless he is a registered person, apply to any person who is or may at any time hereafter be a professional member of the Institution of Civil Engineers, or is a professional member of any of the bodies specified in the Second Schedule to this Act, or of such other professional body as may from time to time be approved by the Council or to any person when performing any of the duties or functions connected with any office held by him under any public or local authority or to the department of any

undertaking the head of which is a registered person: Provided that nothing in this section shall operate to prevent a professional member of any body referred to in the said Schedule, or of such other body as may from time to time be approved by the Council from being registered under this Act if he is duly qualified for registration under the provisions of this Act.

Application of Act to Scotland.

20.—In the application of this Act to Scotland—

(a) the expression "High Court" means the Court of Session, "Sheriff" includes Sheriff Substitute, "Procurator Fiscal" means Procurator Fiscal in the Sheriff Court;

(b) all prosecutions, complaints or proceedings under this Act may be brought in a summary form before the Sheriff of the County where the cause of such prosecution, complaint or proceeding arises or where the offender or defender may be for the time, and such prosecutions, complaints, or proceedings may be at the instance of the President for the time being and the Secretary of the Institute or of the Procurator Fiscal for such County, and the Summary Jurisdiction (Scotland) Act, 1908, shall so far as applicable apply to any proceeding under this Act.

Application of Act to Northern Ireland.

21.—In the application of this Act to Northern Ireland—

(a) the expression "High Court" means the Supreme Court of Judicature of Northern Ireland;

(b) for the purpose of enabling the Parliament of Northern Ireland to repeal or alter the provisions of this Act in its application to Northern Ireland this Act shall be deemed to have been passed prior to the appointed day referred to in the Government of Ireland Act, 1920.

FIRST SCHEDULE.

Constitution of the Board of Architectual Education.

One representative of each of the Governing Bodies of the Universities of Oxford, Cambridge and London, and three others to be nominated by the Standing Committee of Vice-Chancellors and Principals of the Universities of Great Britain and Ireland.

One representative of each School of Architecture in Great Britain, the passing of whose examination is or may be recognised for exemption from the final examination of the Institute.

Four representatives of the Schools of Architecture in Great Britain, the passing of whose examinations is or may be recognised for exemption from the intermediate examination of the Institute.

The Director of Education of the School of Architecture of the Architectural Association of London.

Two representatives of Technical Institutions teaching architecture (one of such representatives from London institutions and one from provincial institutions) to be nominated by the Association of Technical Institutions and one representative of the Art Schools teaching architecture to be nominated by the National Society of Art Masters.

One representative of the Association of Teachers in Technical Institutions.

One representative of and to be nominated by each of the following bodies:—

The Headmasters' Conference.
The Incorporated Association of Headmasters.
The Association of Architects, Surveyors and Technical Assistants.
The Institute of Builders.
The Royal Society of Arts.
The Incorporation of Architects in Scotland.
The Ulster Society of Architects (Incorporated).
The British School at Rome, Faculty of Architecture.
The Royal Academy of Arts.
The Incorporated Association of Architects and Surveyors.
The Faculty of Architects and Surveyors.
The National Federation of Building Trades' Operatives.
The Union of Educational Institutions.
The Workers' Educational Association.
The Central Education Committee of the Co-operative Union.
The Education Officer of the London County Council.
The Master of the Art Workers' Guild.
The President of the Town Planning Institute.
The President of the Institute.
The Honorary Secretary of the Institute.
The Chairman of the Allied Societies Conference.
The President of the Architectural Association.

Twelve members, being persons on the Register, to be appointed by the Council.

SECOND SCHEDULE.

The Surveyors' Institution.
The Institution of Municipal and County Engineers.
The Society of Engineers.
The Institution of Structural Engineers.
The Incorporated Association of Architects and Surveyors.
The Association of Architects, Surveyors and Technical Assistants.
The Auctioneers' and Estate Agents' Institute of the United Kingdom.
The Incorporated Society of Auctioneers and Landed Property Agents.
The National Association of Auctioneers, House Agents, Rating Surveyors and Valuers.
The Land Agents' Society.
The Faculty of Architects and Surveyors.
The Scottish Estate Factors' Society.

R.I.B.A.

Empire Timber Exhibition

At the invitation of Lieut.-General Sir Wm. T. Furse, K.C.B., D.S.O., the Director of the Imperial Institute, a special visit of architects to the Empire Timber Exhibition has been arranged by the R.I.B.A. The visit will take place at 2.30 p.m. on Wednesday, May 23, and the party will be conducted by Mr. H. D. Searles-Wood, F.R.I.B.A., representative of the R.I.B.A. on the Imperial Institute Advisory Committee on Timbers, and by Dr. Chandler, of the Imperial Institute. Architects desirous of taking part in the visit are requested to send their names to the Secretary of the R.I.B.A., 9, Conduit-street, W.1, not later than May 21, when further particulars will be sent.

THE CUBING OF BUILDINGS.

We take the following from the current issue of the R.I.B.A. Journal:—

The Practice Standing Committee regret that so small a response has been made to their request that members should apply the R.I.B.A. standard methods of computing the cubic contents of buildings to their recent and current work, and enter the results upon the forms which have been specially prepared for the purpose.

It is pointed out that a reliable and much needed schedule of prices per cubic foot for various types of buildings can only be compiled if adequate numbers of forms are duly filled in and returned to the secretary for classification.

The standard methods of measurement which the Committee drew up after prolonged consideration and investigation were published in the issue of the "Journal" for September 17th, 1927, and are here repeated for the convenience of members:—

No. 1. Length and Width Measurements.

To be taken between the outer faces of the walls.

No. 2. Height Measurement.

To be taken from the top of the concrete foundation to (*in the case of a pitched roof*):

a line midway between the point of intersection of the outer surfaces of wall and roof, and the apex; or (*in the case of a flat roof*):

a height of 2 ft. above the roof.

In the case of a Mansard roof, its cubic contents are to be calculated separately.

No. 3. Projections.

After measuring the main structure an additional cube is to be made for the following projections:—

(*a*) Porches.
(*b*) Bays and Oriels.
(*c*) Turrets and Fleches.
(*d*) Dormers.
(*e*) Chimney Stacks.
(*f*) Lantern Lights.
(*g*) Terraces and External Steps.

The forms can be obtained on application to the Secretary, R.I.B.A.

R.I.B.A. Special Examination Qualifying for Candidature as Associate.

The Council of the R.I.B.A. have decided that the Thesis or written article shall be abolished in the case of the Special Examination, qualifying for candidature as Associate, which is open to architects in practice and assistants over 30 years of age whose applications are approved by the Board.

Candidates will now be required only to submit in support of their applications, as evidence of their general architectural knowledge and capabilities, examples of their work accompanied by a detailed report, or reports. The report, or reports, will be required to deal with the reasons for the selection of the site, its treatment, and a description of the building of which the report is the subject.

District Surveyor: Statutory Examinations.

The R.I.B.A. Statutory Examinations for the office of District Surveyor under the London Building Acts, or Building Surveyor under local authorities, will be held at the R.I.B.A., London, on May 2, 3, and 4, and on October 17, 18, and 19, 1928. The closing dates for receiving applications for admission to the examinations, accompanied by the fee of £3 3s., are April 11 and October 1 respectively. Full particulars of the examinations and application forms can be obtained from the Secretary, R.I.B.A.

R.I.B.A. Annual Dinner.

We have received the following statement from the R.I.B.A.:—

Architects will be gratified to learn that His Royal Highness the Duke of York has graciously consented to be present at the annual dinner of the Royal Institute of British Architects which will take place on Wednesday, May 23, in the Hall of Lincoln's Inn, which has been kindly lent for the purpose by the Benchers. Full particulars and application forms will be sent to all members at an early date.

SOCIETIES AND INSTITUTIONS

SURREY QUANTITY SURVEYORS.

At a meeting held on Monday, January 30, a large gathering of Surrey quantity surveyors attended to hear a paper read by Mr. C. G. Dobson on "Roof Tiling and Roof Measurements." In the unavoidable absence of the chairman (Mr. Wilfrid L. Evershed), the chair was taken by Mr. P. W. Freemantle, F.S.I. The Honorary Secretary (Mr. Henry A. Mackmin, F.S.I.) announced that he had received so many letters regarding the previous discussion on measurements that it would be necessary to devote a whole evening to the subject. The lecturer gave a complete history of tile-making and many valued hints regarding specification writing and measurements, and after the discussion which followed, answered very many questions. A hearty vote of thanks was proposed from the chair.

The next paper will be read by Mr. S. R. Saunders and will be entitled "The Origin of

Quantity Surveyors and Notes on Old Quantity Surveyors' Customs." Quantity surveyors residing or practising in Surrey, also probationers and students, are invited to write the Honorary Secretary ("Glenlyn," Beaulah-road East, Thornton Heath).

SOUTH WALES ARCHITECTS.

Dr. R. E. Stradling, Director of Building Research in the Department of Scientific and Industrial Research, addressed the South Wales Institute of Architects and the South Wales Branch of the Institute of Builders at Cardiff on Thursday, February 16, on "Cement and Concrete." Mr. T. Alwyn Lloyd, F.R.I.B.A., presided in the absence of Mr. J. Llewellin Smith, L.R.I.B.A.

Dr. Stradling, who illustrated his lecture with lantern slides, gave an extremely valuable and interesting statement on the scientific aspect of architectural and building work. He showed how interesting was the evolution of building methods, dealing in turn with those adopted by the early Briton, the Roman, the mediæval builder, and the builder of the Renaissance period, and indicated that if the stately homes of England remained in the old style, the more modern structures from the council houses to great commercial buildings were being fashioned largely in the sturdy white grandeur and of the composite fabrics produced by modern scientific methods.

EDINBURGH ARCHITECTURAI ASSOCIATION.

Comments on the need for care in modern building construction were made in a speech by Lord Constable at the annual dinner of the Edinburgh Architectural Association held in the North British Station Hotel. Mr. John Begg, F.R.I.B.A., presided.

Mr. A. Lorne Campbell, F.R.I.B.A., proposing "The City of Edinburgh," said there was a dignity about Edinburgh and about its town council which was very admirable and most desirable. Bailie Hay, in reply, said that sometimes, up in the city chambers, when they were considering housing and building, he wondered why an association of architects did not send representatives to the town council to look after the interests of the architecture of the city, instead of leaving it to drapers, hosiers, silversmiths, and other amateurs.

Lord Constable, proposing "The Edinburgh Architectural Association," said there was a period in Scotland when, for 200 years at least, all the æsthetic and artistic sense in Scotland seemed to be dead. They lived to-day in happier times. The architectural profession had been able to show how truly it had been able to rise to the highest position in recent works of architectural skill. He might only take as one illustration the National War Memorial on Castle Rock. There was another modern development, in which a great opportunity had opened out for members of their profession, and in which its controlling influence was very urgently needed. The fact was they all needed to study what was really a novel and a most difficult art—the art of rural planning. It ought to be possible so to accommodate even a comparatively large population as to be perfectly consistent with the maintenance of the essential features of a beautiful countryside. They were threatened with the destruction of their countryside, and to their association and profession the public looked to see that these disfigurements were prevented, and to see that one of the most precious national assets of Scotland was preserved to the community.

The toast was briefly replied to by the chairman.

Other toasts were:—"The Building Trades," proposed by Mr. R. S. Reid, and replied to by Mr. W. W. Finlayson; "Our Guests," proposed by Mr. T. F. Maclennan, and replied to by Lord Dean of Guild Bruce; and "the Chairman," proposed by Mr. G. P. K. Young.

LEGAL QUESTIONS WE HAVE BEEN ASKED

By W. T. CRESWELL, Barrister-at-Law, L.R.I.B.A., Associate (late Fellow) Surveyors' Institution, etc.

VIII—Can the By-laws of a Local Authority be Waived?

Local Government is that department of the government of a Nation or State which deals mainly with matters which concern the inhabitants of particular districts or communities, individually, and which it has been found can more conveniently be decentralised, being administered in each district or community by what is called a local authority. These local authorities are in every instance subordinate to the Government, and have no other powers, except such as is given them by Statute. Most of these Statutes are obligatory; others are adoptive (that is to say, are subject to the preference of any local authority), whilst others are only local, and their existence should be ascertained by any person, if his own interests demand a knowledge of them. The Metropolis has its own Building Acts.

Power to Frame By-laws.

An urban authority derives its powers to frame by-laws in respect to the lay-out of streets and construction of buildings, etc., from Section 157 of the Public Health Act, 1875. Rural authorities are not directly authorised to make by-laws, but may acquire the power to do so by adopting Part III of the Public Health Act, 1890, or by applying to the Ministry of Health to be invested with such powers as they deem suitable to their district; the application may be made for and in the sole interests of some contributory place within their district.

Some districts have never had by-laws; and in some districts by-laws which were formerly in force have been revoked by the Minister of Health, for the reason that they were unreasonable, and, in some cases, constituted an impediment to building.

Model By-laws.

Model by-laws were issued by the Local Government Board in 1877, and these have been remodelled from time to time. By-laws framed on these models generally make it compulsory for every person who seeks to erect a building locally, to submit plans and sections to the local authority; and in many districts, though not in all, it is further made compulsory that plans and sections of new streets must also be submitted for approval to the local authority.

Submission of Plans, etc.

Now, where by-laws for the submission of plans are in force, it is a separate offence to proceed with the work contemplated without first submitting these, even though the work, as carried out, does, in fact, comply with the by-laws in force; hence it is always perilous to proceed with the work until approval of the plans, etc., has been actually obtained from the local authority. (See R. *v.* Tynemouth R.D.C., 1896, 2 Q.B., 230.)

Approval of Plans, etc.

Under Section 158 of the Act, a local authority must, within one month of submission, signify in writing its approval or disapproval of the proposed work; but if the work is disapproved, that is of no avail if it can be shown that a by-law has not been disobeyed in carrying out the work. For, in all matters concerning contraventions of by-laws, the local authority is ultimately, and in reality, only concerned with that which is done on the land, not with that which is shown on plans. (See Robinson *v.* Barton, Eccles, L.B., 1883, 8 A.C., 798.)

Remedies if Plans, etc., Disapproved.

Alternatively, a person whose plans are disapproved, though he believes them to comply with the by-laws, may (*a*) apply to the court for a mandamus to compel the local authority to pass the plans; (*b*) apply to the court for a declaratory judgment that the by-laws would not be contravened by his plans, under Order XXV, Rule 5, of the Rules of the Supreme Court of Judicature, or (*c*) proceed to carry out the work, and defend his action if proceedings are taken against him by the local authority.

Local Authority Cannot Dispense with its By-laws.

A local authority cannot dispense with its own by-laws; therefore the approval by an authority of building plans which contravene the local by-laws is illegal and inoperative. (See Yabbicom *v.* King, 1899, 1 Q.B. 444.) But in certain districts by-laws themselves may give the particular authority a dispensing power or discretion; and the existence of such discretionary powers must be ascertained from a perusal of the local by-laws.

Relaxation of By-laws.

Section 99 of the Housing Act, 1925, which re-enacts Section 24 of the Housing, Town Planning, etc., Act, 1919, provides for the special relaxation of by-laws in carrying out housing schemes; and if in carrying out in any district a housing scheme, the by-laws or local Acts have been at any time contravened or relaxed under this section, the right to contravene them to the same extent extends to any other person carrying out similar work in the district. Under Section 25 of the Act of 1919, the way is opened for any person to obtain the consent of the local authority to the erection and use of buildings intended to be used for human habitation erected (or proposed to be erected) which are in accordance with regulations made by the Ministry of Health, even if they contravene provisions in local by-laws or local Acts; and if the consent of the local authority is refused, there remains a right of direct appeal to the Minister of Health. This Act originally gave this power to local authorities for a period of three years only; but this period has since been extended, and, unless Parliament otherwise provides, it will not be withdrawn until 31st December, 1928.

Local authorities have also powers to relax by-laws with respect to new streets, in districts where a town planning scheme is in course of preparation or operative under the Town Planning Acts. If the proposed lay-out and general scheme are in accordance with the schedule of street standards approved by the Minister of Health, either in his General (Interim Development) Order, 1922, or in a Special Interim Development Order, or in the town planning scheme for the area itself.

Contravention of By-laws.

Under Section 253 of the Public Health Act, 1875, any person carrying out work in contravention of the by-laws of the district may be prosecuted by the local authority or by any aggrieved person or by any person whose interests are affected, or any person who first obtains the consent of the Attorney-General.

Apart from the foregoing, neither the local authority nor any other person has any right to waive local by-laws.

Views of Old London.

The collection of prints and water-colours relating to London in the possession of the London County Council amounts to 6,700 items and has been acquired either by bequest, gift, or purchase. It has been the Council's practice for some time to place on view in one of the rooms in the County Hall, Westminster Bridge, S.E.1, a number of its prints and water-colours selected and arranged so as to form a coherent whole. Arrangements can generally be made for persons interested to view the exhibition on any day during office hours. Application for this purpose should be made at Room No. 114 (the Members' Library).

SWIMMING BATH, CLECKHEATON, SPENBOROUGH U.D.C.

This bath was constructed and waterproofed by the general contractors, Sam Drake & Sons, of Liversedge, to the designs of the Engineer and Surveyor, A. Rothera, M. Inst. M. Cy. E. The floor is of concrete, and the walls of brickwork. An inside lining of cement mortar, mixed with 'PUDLO' Brand cement waterproofer was applied to the walls and bottom of the bath.

After the glazed bricks were fixed to finish the inside, the bath was tested by filling it with water. The test lasted a whole week, and no leakage whatever occurred. The waterproofed cement forms a perfect backing for the glazed lining. When glazed bricks or tiles are set and pointed in waterproofed cement, it is a great safeguard against staining which often occurs as a result of dirty water soaking through the joints and into the porous "biscuit" behind the glaze.

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20th Dec. 1927

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Chas. A. Swift
Manager.

TOWN PLANNING INSTITUTE

Town Planning Education.

Mr. Montagu Harris (President) was in the chair at a meeting of the Town Planning Institute, held on February 10, at Caxton Hall, Westminster, when Professor S. D. Adshead read a paper on "Town Planning Education." Before dealing with the very practical issues involved in the formation of classes and courses, said the lecturer, he would like to dwell for a moment on the subject of the student, as student, and the teacher as the exponent of knowledge. For practical purposes they graded students into classes and fitted them into courses, and at the very outset our educational system must perforce assume that all students composing these classes and taking these courses severally, started with the same qualifications, were possessed of the same mentality and ability, and were capable of understanding their subject and seeing it in the same light. In practice, nothing was so divergent from the truth. The students who made up the different classes were, as a rule, human beings and not cogs in a wheel. To their infinite credit it might be stated that, with exceptions, something could be made of each of them, though few were born to be highly qualified men, and for this reason he felt very strongly that in all schools it was most necessary to limit the number of students in the different classes to a number in which each individual could be known to the teacher, and in large schools so to arrange the relation between the different teachers and the different classes, that every student might be said to be on intimate terms with him.

He must preface his address with a reference to the education of the town planner in its relation to his qualification as lawyer, architect, engineer or surveyor, which at once led him into the intricacies of that very controversial question as to whether the town planner, as such, need necessarily hold high qualifications in any one of the professions referred to. He was inclined to think that it must be admitted that it was not necessary for the purely professional town planner, as such, to be a fully qualified lawyer, architect, engineer or surveyor. Should, however, a town planner hold any of these qualifications, it was in no sense a detriment, but rather an advantage, and whilst they must regard as the pinnacle of town planning accomplishments the man who was lawyer, architect, engineer and surveyor in one, still at the same time, in the education of the town planner it was essential to include the study of those branches of knowledge which they had come to regard as the "humanities" and such of them as might be described under the simple headings of "sociology," "history" and "geography," whether they commenced with the raw undergraduate who had matriculated or passed some school-leaving examination, and started at once to train him in the principles and practice of local government law, valuation, land surveying, engineering and architecture, at the same time passing him through courses in social history, economics and regional geography, to say nothing of such subsidiary matters as garden planning and horticulture, and in so training him to attempt to make him a kind of Leonardo da Vinci, Mommson and John Stuart Mill all rolled into one; or whether they started with him fully qualified in any one of these branches of learning in so far as professional attainment expected him to go, and from that platform opened up to his vision and led him to a certain distance down those avenues of learning, an acquaintance with which was admitted by all to be an essential to the responsible town planner.

He knew that it was a controversial question, but it was a view of his that in theory, if not in practice, town planning as a profession could not be undertaken by a member of any of the enumerated professions, unless one had made himself acquainted with the broad principles and the generally accepted knowledge of the other professions already enumerated, and unless he was deeply interested in each of them as contributing something to what was, after all, the biggest technical profession that any one man could be expected to follow, viz.: town planning. To make himself quite clear, he suggested that whilst the town planner, as such, need not necessarily be a qualified architect, engineer or surveyor, he was only capable of the execution of the details of a town plan in so far as they were an accessory to his particular profession. If this view was correct, one man might prepare a town plan, but it would take several to execute it: moreover, he did not believe that a panel, consisting of an architect, an engineer, a surveyor and a legal gentleman, were in any sense qualified to prepare a town plan, unless every one of them had made a study, from the town planning point of view, of the practice of the others.

When some seventeen years ago, he was called upon to draw up a syllabus for what at the time was the first school of town planning—the Department of Civic Design in the University of Liverpool—he gave very serious consideration to the subject, and viewed it as a new profession. There were always the two alternatives: cutting one's coat to the cloth, or of cutting the cloth to the pattern of the coat. Was he to take his raw material—the student—and regardless of his particular professional attainments, attempt *de novo* simply to make him a town planner as such; or, regarding his limitations, or perhaps more correctly speaking, the range of his qualifications, was he to accept the principle that there could be no "generalissimo" in town planning, only "colonels" of different regiments; and that the students coming from the different professions could only become town planning designers in so far as town planning was an extension and enlargement of the ordinary practice of their profession? In a way, he accepted both views: he assumed that up to a stage, students in any one of those professions could sit at the same desk, listen to the same lectures and attain a general knowledge of all the main subjects which were necessary to the make-up of the town planner.

At a later stage, and in their third year, by concentrating more on detail, the attitude of students coming from the different professions must necessarily revert back to their original interest and again become divergent. It was this practice—the acceptance of this principle in the teaching of town planning—which had formed the basis of the educational system now being carried on in the Universities both of Liverpool and of London. The Liverpool school was now, and had been for many years, in charge of Professor Abercrombie who had no doubt improved in many ways upon the original scheme inaugurated by the lecturer

It would be of interest if he were briefly to review the actual syllabus of teaching in some of the schools. He had a syllabus of Dr. Bruggeman's school. The school was located in the same building as that of history, geography and civic economy. It was under the direction of a committee of experts. The secretary and director of the school was Mons. A. Bruggeman. The work of the school was to enquire into matters appertaining to the study of towns, their arrangements, embellishment, extension, organisation and administration—economic and social. In its point of view it did not recognise any difference between social and material advantages: it treated the town as consisting of a collection of economic and social functions controlling its organs. The syllabus proceeded to explain that the town has a triple character: scientific, useful and popular. The list of courses embraced a very wide synopsis and seemed to consist of lectures and conferences. There were five such courses arranged under the following heads and given by the respective professors:—The Evolution of Towns, by Mons. Marcel Poete: the Social Organisation of Towns, by Mons. Edouard Fuster; the Administrative Organisation of Towns, by Mons. Gaston Jéz; the Economic Organisation of Towns, by Mons. A. Bruggeman; the Art and Technique of the Construction of Towns, by Mons. Léon Jaussely. The synopsis of the courses was really very similar to the synopsis of the lecture courses given in the Liverpool and London Universities: if anything it was wider, and reading through the list of matters dealt with, one was struck with the extraordinary logical sequence in which the subjects taught were arranged.

The first course on "The Evolution of Towns" appeared to consist of eleven lectures, and commencing with a disquisition on the sociological basis of towns, was followed by a discourse on the evolution of the dwellings of primitive men, and so the logical sequence gradually led up to the history of town planning, which extended over the whole period from Egypt to the modern developments of England, of European countries and of America. In the course on "Social Organisation," the general character of a city's population was dealt with, and this was followed by what, literally translated, gave one rather a new idea, the limiting conditions of town life; then came sanitation, administration and education. The third course which dealt with the "Organisation of Towns" appeared to him somewhat to overlap the first and second courses. It particularised the duties and work of administrative authorities. It also dealt with questions of finance, the control of public vehicles, public buildings and public services. Course 4, "Economic Organisation," dealt with the necessity for an ordered conception in the arrangement of towns: the garden city principle: satellite towns: industrial concentration, its inconvenience and need for distribution. Course 5, which dealt with "The Art and Technique," was in reality an architectural course treating of the different types of buildings: also different types of open spaces.

The course of teaching extended over two years, and there was an entrance examination to prove that the student had already acquired the necessary technical knowledge to benefit by the course. Examinations were held at the end of each year, both of which were *viva-voce*. The final examination, however, at the end of the second year required that the student prepare a written thesis. Judging from the synopsis of the subject dealt with, the range of study was all-embracing, and if he might be pardoned for making a criticism, a weakness in the system, as it seemed to him, and which might possibly by now have been improved upon, was that actual practical work in connection with the preparation of town plans was lacking. The sub-division of subjects approximated very closely to that of his own school at the London University. In his school they appeared to pay much more attention, and he thought with advantage, to the work carried out in the studio. As regarded the lecture courses, he separated his subjects into: (1) History; (2) practice which included the theory of town planning and town development, modern history since the commencement of the present century, law and administration; (3) engineering in its application to town planning; (4) the art of planning; (5) town embellishment and furnishing.

He attached the very greatest importance to the "History of Town Planning." This course he took himself, and in endeavouring to treat the subject with some relation to all the exigencies of life, he touched upon the social, political and economic aspects of the subject. This course of lectures gave the ordinary student his first real interest in town planning and opened up to his

imagination a wonderful vista of town growth.

In his course on "Practice" he commenced with the trend of social impetus, then he proceeded to examine towns in their relation with one another and in regard to their functional organisation, and from this led on to transport, administration and law. In M. Bruggeman's course he preceded his "History" course with "Sociology"; perhaps he was right, but it seemed to him that it was better to let it precede the evolution and organisation of the towns.

He attached great importance to the work done in the studio. It was here that the real difficulties of solving a practical problem were first met with. Only occasionally did he set as a studio subject what one might describe as a programme for an ideal town. His method was to select an actual area, visit it with the students: if it was a whole town, discuss its history, its economics, its possibilities, and following this set the students to make a rough survey, and this more to teach them to be observant and how to show the information collected on a map. Following this came the preparation of a development plan, and possibly a scheme for an internal improvement, or the development in detail of an interesting part of the extended town. As regarded actual draughtsmanship and the preparation of maps, he endeavoured during each session to set one problem which required the particular notation of the Ministry of Health on their statutory maps, though usually he encouraged a more imaginative and interesting type of drawing. He was of opinion that the quality of the draughtsmanship had a great deal to do with the quality of the design. For instance, he had a theory that no plan in a rural district should be prepared with T-squares and set-squares and ruled lines. Half the destruction of rural England was due to planning and building in accordance with hard ruled lines. Town planning was not a subject which up to now had attracted many students as a free and independent profession. The majority of his students regarded it as a post-graduate course and as an added accomplishment to their qualifications in one of the technical professions. The time at the disposal of the majority of town planning students was thus limited to their evenings: thus, while they had usually some half dozen students who were able to study during the day-time, he thought that the majority of town planning students would only be able to attend courses in the evening, and any young architect, engineer or surveyor who was willing to sacrifice two evenings a week and many of his week-ends in the study of town planning, during two terms and three sessions showed that he was possessed of considerable foresight and enterprise, and that he meant to succeed: thus, as a rule, he only got the cream of the young men. But, apart from these students coming from offices, the subject of town planning was becoming more and more a compulsory subject in connection with degrees and diplomas in architecture and surveying. It was an optional course in the estate management degree. It had often been a question as to whether the University should establish a degree in town planning. Personally he did not think so. His opinion was that degrees should only be given in connection with more abstract branches of learning.

So far he had said nothing about the scheme of examination which had been established in connection with the Institute. He believed it was a very good one, but naturally he would like to see a much closer connection between this examination and the preparatory work of the Universities and recognised schools. It was bound to come. At the moment they were in the throes of a discussion as to the differentiation between examinations held by this Institute and those held by the Royal Institute of British Architects, the Surveyors' Institution, and other bodies. His view was that the Town Planning Institute was the only body qualified to examine a student in town planning. The proper course for the other bodies was to confine their interest in the subject of town planning to that aspect of the subject in which they were particularly interested. Here they might grant diplomas or honours in connection with their ordinary qualifying examination, but if they did grant such diplomas, the qualifications of the student in their particular aspect should be very high indeed.

Professor P. Abercrombie remarked that they had heard nothing of the American idea of making town planners pure and simple instead of grafting town planning on to one of the existing professions, and that was a matter worth discussing, although they were not ripe for it yet. It was, however, not only the students who needed instruction, but the general public, and especially members of local bodies.

Mr. W. Harding Thompson referred to the work being done by the Architectural Association, and said that whilst they were engaged primarily in teaching architecture, they did give young architects the chance of dealing with town planning. He considered there was a great need for travelling studentships in town planning.

Dr. Raymond Unwin remarked that town planning differed from the specialist training of the architect or engineer or any other profession in that it depended more than anything else in linking up connections between things. They, as teachers, had to aim at teaching boys to observe that which was relative to a very wide subject and to think of what they observed more or less in terms of town planning.

Mr. R. H. Davidge, whilst expressing great admiration for the work of the schools, considered their scope too limited, and thought an effort should be made to teach the general public the broad lines of town planning.

Mr. H. V. Lanchester said that in regard to architecture the Americans said the architect should be taught so as to be able to teach other people what architecture meant. If that could be applied to town planning also it would be a good thing.

Mr. E. R. Abbott thought it an impossibility to teach town planning to the general public. It was work for experts, who would be able to hold their own with local authorities.

Mr. G. L. Pepler, Sir E. Howard and the President also joined in the discussion, and a hearty vote of thanks was passed to Professor Adshead.

WEEK IN PARLIAMENT

WESTMINSTER, *Wednesday.*

Houses Authorised.

Mr. Chamberlain gave Mr. Wellock the following statement showing (1) the number of houses under construction, and (2) the number of houses which had been authorised for erection but which had not yet been started under the Housing, etc., Act, 1923, and the Housing (Financial Provisions) Act, 1924, at February 1, 1928, and February 1, 1927, respectively :—

	1st February, 1928.		1st February, 1927.	
	A.	B.	A.	B.
Housing, etc., Act, 1923 ..	20,260	64,693	51,298	76,841
Housing (Financial Provisions) Act, 1924.....	30,296	30,512	51,267	47,686
Total	50,556	95,205	102,565	124,527

A. Number of houses under construction.
B. Number of houses authorised but not started.

White Lead Prices.

Mr. R. Morrison asked the Minister of Health whether he had received any explanation from the Inter-departmental Committee upon the Prices of Building Materials as to why the price of white lead in the Birmingham market had risen from £2 18s. per cwt. in January, 1924, to £3 2s. 6d. in November, 1927.

Mr. Chamberlain said he had not, but he understood that later reports received by the Committee showed that the price was now down again to £2 18s. per cwt.

Management of Houses.

Mr. Chamberlain informed Mr. Griffiths that as regarded houses provided under the 1924 Act local authorities were required to make such provision for repairs, management, empties, and insurance as appeared to them reasonable, having regard to their experience in administering houses already erected under the Acts of 1919 and 1923. That provision was equivalent to about 25 per cent. or 30 per cent. of the rents exclusive of rates.

Rural Housing in Somerset.

Mr. Chamberlain informed Mr. G. Peto that up to December 31, 1927, the Somerset County Council had received applications for assistance under the Housing (Rural Workers) Act, 1926, in respect of the improvement of 40 existing dwellings. Grants had been promised in respect of five dwellings, and work had been commenced, but not finished, on these five dwellings. He was not satisfied with the progress which had so far been made, and he recently issued a circular letter to local authorities urging them to take further steps with a view to expediting work under the Act. He trusted that as a result of his representations better progress would be made.

Rural Housing.

Sir K. Wood informed Mr. Buxton that the number of houses completed in agricultural parishes in England and Wales under the Housing (Financial Provisions) Act, 1924, up to February 1, 1928, was 9,312 by local authorities and 556 by private enterprise.

Hammersmith-road Flats.

Lieutenant-Commander Kenworthy asked the Minister of Transport if he was aware that a large block of buildings was being erected on the Hammersmith-road, on the Holland Park estate, and that although those buildings were being erected on land which was covered with grass a few months ago, they were not being set back from the Hammersmith-road, and apparently there would not be any appreciable widening of that thoroughfare, which was practically the only western exit towards Bristol and the Great West Road from London; and whether he would take powers to prevent new buildings being erected in congested thoroughfares without any widening of main roads of traffic.

Col. Ashley said he assumed that the question referred to shops and flats now in course of erection at the corner of Melbury-road and Kensington-road. He had ascertained that there would be an average road widening of 12 ft. on that frontage when the buildings were completed. The London County Council had ample powers as to the prescription of building lines within their area, and powers in that matter were conferred on all local authorities under section 5 of the Roads Improvement Act, 1925.

Amenities of Whitehall.

Mr. Briant asked the Under Secretary of State for the Home Department, as representing the First Commissioner of Works, if the staff now employed in the temporary buildings in Whitehall were likely to be permanently required; and if so, if buildings more in accord with the architectural amenities of Whitehall could be erected.

Sir V. Henderson said that as regarded the first part of the question, it was not within his province to say whether the staffs mentioned were likely to be required permanently or not; as regarded the second part, the First Commissioner was most desirous that all the temporary buildings in Whitehall should be cleared and the site developed more in accord with the architectural amenities of the area as soon as the financial situation would allow.

MEETINGS

SATURDAY, *March* 3.

London Society. Visit to the Custom House, E.C. 3. 2.30 p.m.

Institution of Municipal and County Engineers. At Cardiff. 3 p.m.

MONDAY, *March* 5.

Royal Institute of British Architects. Mr. G. H. Jack on "Ancient Bridges." 8 p.m.

Surveyors' Institution. Mr. Percy J. Waldram on "The Estimation of Damage in Ancient Lights Disputes." At Institution of Civil Engineers, Gt. George-street. 8 p.m.

Edinburgh Architectural Association. Mr. W. J. Carrick on "Tender Reflections." 8 p.m.

Society of Engineers. Mr. R. Hazleton on "Registration of Engineers." 6 p.m.

Institution of Structural Engineers. A joint meeting with the Manchester and District Clerks of Works and Building Foremen's Association. At the Houldsworth Hall, Deansgate, Manchester.

WEDNESDAY, *March* 7.

Royal Institute of British Architects. Mr. J. H. Jarman on "General Building Materials." 8 p.m.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "The Mediæval Period: The English Home." 6 p.m.

Heating and Ventilating Engineers. Mr. H. R. Hiscott on "Manufacture of Malleable Iron Pipe Fittings." Caxton Hall. 7 p.m.

Liverpool Architectural Society. Paper by Mr. Wesley Dougil.

Institution of Electrical Engineers. Mr. D. S. Munro on "Modern Electric Wiring, particularly as applied to Small Houses." At the University, Birmingham. 7 p.m.

THURSDAY, *March* 8.

Institution of Structural Engineers. Mr. H. E. Steinberg on "Modern Reinforced Concrete Bridges in France." 8 p.m.

Victoria and Albert Museum. Mr. H. Clifford-Smith on "Furniture as shown in Pictures." 5.30 p.m.

Goldsmiths' Hall. Mr. Omar Ramsden on "Some Aspects of Modern Silver Production." 7 p.m.

Society of Antiquaries. Ordinary Meeting. 8.30 p.m.

Liverpool Architectural Society. Annual Dinner. At the Adelphi Hotel. 7.30 p.m.

Sheffield, South Yorkshire and District Society of Architects and Surveyors. Sir A. Brumwell Thomas on "Modern Municipal Buildings." The University, Sheffield. 6 p.m.

FRIDAY, *March* 9.

Town Planning Institute. Lt.-Col. H. P. Cart de Lafontaine on "Paris Building Laws." 6 p.m.

Incorporated Institute of British Decorators. Mr. W. E. Greenwood on "Pompeian Decoration." 7.30 p.m.

HOLBORN TOWN PLANNING

THE Town Planning Inquiry—conducted by Mr. G. L. Pepler of the Ministry of Health—at Holborn Town Hall in opposition to the proposals of the L.C.C. scheme affecting parts of St. Pancras and Holborn, was brought to a conclusion on February 4th. The areas affected included the Foundling Hospital site and a number of squares in that locality.

On behalf of the Foundling Hospital Estates, Ltd., Mr. F. J. Wrottesley, K.C., contended that the Town Planning Acts were never intended to apply to areas that had been built upon and developed, even if they were undergoing reconstruction. Evidence had been given for the London County Council that there came a time in the age of buildings when their economic life had ended and when they ought to be scheduled to come under Town Planning schemes. If that view was to prevail it would mean that the Ministry would have to acquire another very large building and provide for the employment of another 1,000 clerks to deal with a situation never previously contemplated. It had been stated officially over and over again that existing Town Planning powers did not apply to built-up areas. There was not a word in the Acts about redevelopment, and it was stretching the matter beyond reason to say this estate was "land likely to be built upon." He asked the Inspector to adjourn or suspend the inquiry until he had the opportunity of reporting on the legal submissions made and of seeing what course the Minister desired to take.

Mr. Alfred Hildesley, barrister, on behalf of the Harrison Estate, Ltd., also supported a proposal for adjournment.

Mr. Loftus Hare, for the Foundling Estate Protection Association, urged the Inspector not to accede to the requests for suspension or adjournment, but to proceed with the inquiry. The public, he said, were anxious and were entitled to know what were the official intentions regarding this area.

Mr. H. G. Robertson, for the County Council, said no assent would be given by them to a suspension of the inquiry, and he suggested no assent should be given by the Inspector. As the opponents had taken the course they had, he submitted that with the observations he would make the inquiry should finish.

Mr. G. L. Pepler, the Inspector, said he understood the position was that the opponents asked that he should not proceed further until the Minister had decided whether all or any part of the area could be included. If that decision was in the affirmative, they desired to be heard in detail on merits.

That being accepted as the position, the inquiry was adjourned indefinitely.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

***May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting?*— ED**

A Rent Restriction Problem.

[REPLY TO MR. RICHARD ANDERTON, FEBRUARY 10.]

SIR,—It is assumed that the "very old gentleman of kindly disposition," referred to by Mr. Richard Anderton, let his semi-detached villa at pre-war rental current at the time—landlords, great and small, widows and orphans, very old gentlemen and very young ditto, have a habit of so doing. The Government allow a certain increase on this pre-war rent, provided the house comes under the Rent Restriction Act for the purpose. Why the Government should specially favour landlords—great and small—in these strenuous times, or at any other, leaves a lot to be explained.

On the above principle, those who have their all invested in a business, which has deteriorated in value, should also be recompensed; the manufacturer with a large dead stock, the mine-owner, the shipbuilder, and so on, *ad infinitum*, have just as much right, if any moral right exists, to compensation. Let the "very old gentleman of kindly disposition," like many others, realise that his pre-war investment is not the good thing it was supposed to be.

Your correspondent asks: "Can he (the very old gentleman, etc.) get his tenant out now or soon"? "What can he raise the rent to"? I would suggest that the tenant, after paying his rent for a number of years, has some rights.

SECUNDUM LEGEM.

Working-Class Flats.

[REPLY TO MR. CHAS. P. HAMPSON, FEBRUARY 17.]

SIR,—As I have been recently concerned in two working-class housing schemes in the same district, one being on the flat system, and one of two-storied dwellings, some of my observations may be of service to your correspondent.

We found that the two chief drawbacks were the extra labour involved, from the housewife's view, in the operation of drying clothes on a ground level drying green, and the carrying of children from the upper flats to the pram stores on the ground floor.

The objection that in such close planning as in a block of flats, the likelihood of neighbours quarrelling was increased, we did not find to be the case. There were, of course, some petty quarrels, but not more so than on the extended lay-out of two-storied scheme. Tenants complained of the noise from the upper flats, and without expensive construction it is difficult to make the solid dividing floors reasonably sound-proof. A resident caretaker is an essential on a block of flats, whereas in an open scheme it is not necessary.

We concluded that not only was it cheaper to build two-storied work where conditions permitted, but that it was altogether more convenient and better to do so from the tenant's point of view, wherever the land was available at a reasonable price.

ESTATE.

Dampness in Bungalow.

[REPLY TO "READER," FEBRUARY 17.]

SIR,—I would suggest an independent survey of dampcourse, concrete covering site, current of air, and spacing of sleeper, walls, etc.; then, having a basis for discussion, proceed accordingly.

CLERK OF WORKS.

SIR,—"Reader" fully details defects that have appeared, but apparently does not seek a remedy for them; but he raises a legal point which it is somewhat difficult to reply to in the absence of particulars as to the nature of the contract with the builder.

Was an architect employed? Did the contract include a maintenance period? Was the architect's final certificate conclusive, and did it limit the time during which the builder could be held liable for defects?

These and other questions present themselves. Nevertheless, it may now be said that a builder is always liable for defects which have appeared during the maintenance period, although the cause of these defects may not be discovered till after the expiration of that period. Therefore, though it is difficult, it is possible in some extreme cases to hold the builder liable for defects after the expiration of the maintenance period, unless he has obtained a conclusive certificate of satisfactory completion.

On the facts stated it would appear "Reader" has an extreme case in which he could doubtless recover damages from the builder; but he should supply the information above suggested, and seek legal advice before proceeding further. There are several decided cases where responsibility for dry rot has been placed upon others concerned in the contract and to the employers advantage.

LAW.

Finish to Walls of Hospital Wards.

SIR,—A large number of wards in a hospital are of brick unplastered, and the rough surfaces have been for some years coated with ordinary oil paint. It is now desired to obtain a smoother surface, and it has been proposed to hack off the paint, rake joints, and cover the walls with plastering floated and set. This entails much expense, labour, noise, and dust in preparing for the plastering, and it is thought that possibly some kind of mastic (such as a soft paste made of whiting and linseed oil, or cheap varnish) could be skimmed thinly on to the present painted surface and subsequently rubbed down smooth with a steel trowel or flat-iron, and painted with enamel. Can any reader who has had a similar case help in the matter?

SALISBURY.

THE BUILDING TRADE

EVERYDAY SCIENCE FOR ARCHITECTS AND BUILDERS—VIII

By A. M. Giles, B.Sc., A.I.Struct.E., A.M.I.E.E.
Diagrams and Illustrations by M. R. Dumville.

Expansion.

In the previous article it was stated that when heat is supplied to a body it will expand, conversely, if heat be withdrawn from a body it will contract. This is true whether the body be a solid, a liquid, or a gas. Of the whole range of scientific principles, the applications of which are found in all branches of the building trade, none is more important nor more widespread than the expansion or contraction of a substance due to a change in its temperature. For the same temperature change liquids expand more than solids and gases more than liquids. In the present article we will consider the expansion and contraction of solids, and more particularly, metals.

That they do expand and contract can be demonstrated in many ways. We will select just two, both of which are illustrated in Fig. 27. They are known as the bar and gauge experiment (Fig. 27A), and Gravesande's ring and ball experiment (Fig. 27B). In the bar and gauge experiment, when both are at the same temperature, the cylindrical bar just fits into the slot. If now the bar be heated by placing it in a gas flame it will no longer fit into the slot

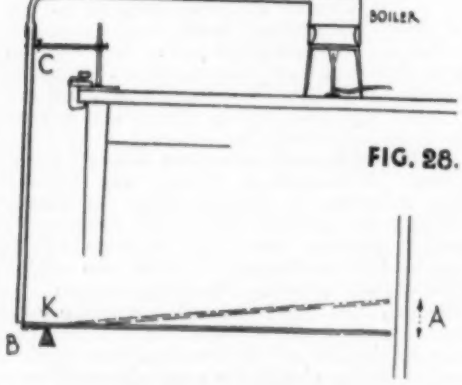


FIG. 28.

which has not been heated. There is another part to this experiment, viz., one end of the bar is of the correct diameter so that it just fits into a circular hole made in the gauge. After the bar has been heated it will be found that the end no longer fits into the hole.

In the other experiment (Fig. 27B), the metal ball will just pass through the ring when they are both at the same temperature, but after the ball has been heated it will not pass through the ring but will rest on it until it has reached the same temperature as the ball.

Coefficient of Expansion.

Though the expansion due to change of temperature is small it has to be taken into account, and, to some it is important that they should know its actual value. In fact, in pocket-book tables, under the heading of expansion, a number is found against each metal. This number is called the coefficient of linear expansion. For example :—

Brass = 0.0000189. Lead = 0.0000292.
Iron = 0.0000114. Marble = 0.0000117.

These numbers, coefficients, give us the amount that a unit length will expand when the temperature is raised one degree Centigrade. A change of one degree Fahrenheit is smaller, and therefore the corresponding coefficient of linear expansion of brass will be 0.0000105, which is five-ninths of the number given above. (One degree Fahrenheit is five-ninths of a degree Centigrade.) Putting it quite simply, the number given above for brass, viz., 0.0000189, means that 1 in. of brass will become 1.0000189 in. if its temperature be raised one degree Centigrade, or 1 ft. will become 1.0000189 ft. for

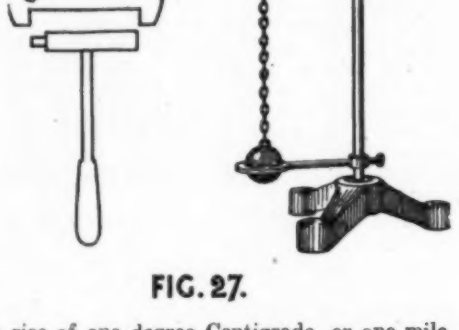


FIG. 27.

a rise of one degree Centigrade, or one mile, will become 1.0000189 mile for a rise of one degree C. Similarly for other substances.

In an experimental determination of these coefficients the difficulty is to get an accurate measurement of the amount of expansion for any temperature change.

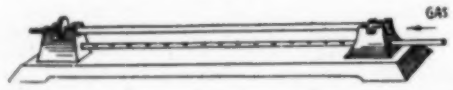
Experiment. (See Fig. 28.)

A brass tube *CB*, about a yard long, is fixed at the point *C*, and allowed to expand downwards at the point *B* when steam from a boiler is passed through the tube. The edge of the free end of the tube presses on one end of a lever which rests on a knife-edge *K*. The other end of the lever points to a graduated scale.

From elementary mathematics it is known that the ratio of the rise of the end of the long arm of the lever to the expansion of the tube downwards will be the same as the ratio of the length of the long arm of the lever to the length of short arm. For example, if the length of the long arm be 30 in. and of the short arm be 3 in., then the ratio will be 10 to 1. This would mean that, if we divide the rise of the end of the long arm of the lever (as shown on the graduated scale) by 10 we should get the actual expansion of the length *CB* of the brass tube when its temperature changes from that of the room, say 15 degrees C., to that of steam, say 100 degrees C., *i.e.*, for a rise in temperature of 85 degrees Centigrade.

In an actual experiment, using a tube whose length *CB* was 36 in., for a temperature change of 85 degrees C. we found the rise of the end of the long arm of the lever was 9/16ths of an inch, therefore the actual

FIG. 30.



increase in length of 36 in. of brass tube for a rise of temperature of 85 degrees C. was 9/160ths of an inch, and this gives us as the coefficient of linear expansion of brass the number 0.0000183.

For
36 inches have increased 9/160ths of an inch for a rise of 85 degrees C.;
i.e., 36 inches have increased 0.05625 inch for a rise of 85 degrees C.;
therefore 36 inches have increased 0.05625 divided by 85 of an inch for a rise of 1 degree C.;
and therefore 1 inch has increased

$$\frac{0.05625}{85 \times 36}$$

of an inch for a rise of 1 degree Centigrade, and this gives 0.0000183;

Therefore the coefficient of linear expansion of brass determined by this experiment = 0.0000183.

This is very near the value 0.0000189 which has been determined by more accurate experimental methods.

The amount of expansion or contraction of a body depends upon three conditions :—

(a) The original length or volume, *e.g.*, a mile length of wire will expand more than 100 yards' length for the same temperature change;
(b) The temperature change, *e.g.*, a body will expand or contract more for a hundred degrees change of temperature than for a twenty degrees change;
(c) The kind of material, *e.g.*, for the same temperature change a yard length of brass will expand or contract more than a yard length of steel. For these two metals the ratio is approximately 3 to 2.

Experiment.

The last condition (c) can be very effectively demonstrated (see Fig. 29A and B). It is called the compound bar experiment. Two flat lengths of metal, one of brass, the other of iron, riveted together so that they cannot slide over one another, are mounted in a handle as shown at Fig. 29A. Now, if the temperature of the compound bar be raised

FIG. 29.

by holding it in a gas flame, it will not remain straight but will become curved as shown at Fig. 29B. The metal that expands the more will be found on the outside of the curve, in this case the brass.

This result is made use of in several ways in practice. For example, the pendulums of clocks and the balance-wheels of watches are made of different metals, so arranged that the expansion in one direction just balances or counteracts the expansion in an opposite direction, and therefore the time of vibration of the pendulum or balance-wheel will remain constant. There is also a well-known fire-alarm which depends for its action upon the difference of the amount of expansion of two metals for a given temperature change. The compound bar, upon its temperature being raised a certain amount, curves round and completes an electrical circuit, thereby ringing a fire-bell.

The Force Exerted by Expansion and Contraction.

This aspect of expansion and contraction is a very important one. It has been made use of and at the same time has had to be guarded against by builders in all branches of their work. The magnitude of the force of expansion and contraction of metals due to temperature changes may not be thoroughly understood, yet a simple demonstration helps to make it more impressive. The apparatus used is sometimes called the "bar-breaker." This name has probably arisen from the fact that a rod of metal is made to expand by

heating it, while a small cast-iron bolt, about a ¼ inch in diameter, is fitted so as to resist the expansion. The iron bolt, however, is broken with explosive force by the expansion of the metal rod.

The diagram, Fig. 30, will help to show what actually takes place. A cylindrical rod, about 18 in. long, is flattened at one end and a hole made through it to take the ¼-in. diameter cast-iron bolt. The other end is fitted with a screw thread and a circular nut. The end with the iron bolt is arranged so that the bolt fits in a slot and presses against the two sides of the support. The circular nut at the other end is screwed up so as to press tightly against supports. The length of the rod is now fixed at both ends. By means of the tubular gas burner fixed below the rod its temperature is now raised, and the force exerted by the rod in attempting to expand will break the iron bolt.

In a similar manner the force of contraction can be shown. While the rod is still hot, another bolt is fitted through the hole and arranged to press against the stop pieces. The nut, at the other end, is screwed up tightly against the other side of the supports, so that again the length of the rod is fixed at both ends. While the rod is cooling, its force of contraction will again break the cast-iron bolt. We thus become convinced that the forces set up by the expansion and contraction of a metal are very great.

NEW BUILDINGS IN LONDON

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned.

Abbey Wood.—HOUSES.—Messrs. Culpin & Bowers, architects, 3, Portsmouth-street, Lincoln's Inn, W.C.2, on behalf of the Royal Arsenal Co-operative Society, Ltd., have submitted an application to the Woolwich Borough Council for new roads east of Bostall-lane, Abbey Wood, and to build and drain 50 houses.

Becontree.—HOUSE.—Plans for a new public-house in Becontree-avenue for the Improved Public House Co. Ltd., will be prepared by Mr. T. Frederick Ingram, A.R.I.B.A., 83, Buckingham Palace-road. S.W.1.

Bloomsbury.—SITE.—The L.C.C. recommend that, subject to the consent of the Ministry of Health, the land on the west side of Herbrand-street, Bloomsbury, be appropriated for ambulance purposes.

Burnt Ash.—ADAPTATION.—The London County Council has recommended that permission be granted to United Dairies, Ltd., to adapt premises at Burnt Ash Farm, Baring-road, Lee, S.E., for the purpose of the establishment of a milk-distributing depot.

Clerkenwell. — QUARTERS. — Tenders have been received by Mr. G. Mackenzie Trench, F.R.I.B.A., architect, for the erection of police married quarters at Wimlington-square, Clerkenwell, W.C.

Downham.—SCHOOL.—The London County Council recommend that the sum of £34,104, submitted by the Finance Committee in respect of the erection of an elementary school on site 3 at Downham, be approved.

Edgware-road. — REBUILDING. — Messrs. Harry Neal, Ltd., of Northwood, are rebuilding Messrs. Lilley & Skinner, Ltd.'s premises at 300/302, Edgware-road, W. 2, and the architect is Mr. Gordon Jeeves, 16, Hanover-square, W.

Edmonton.—DEPOT.—The United Dairies Co., Ltd., propose to erect a dairy depot at Little Bury-street, at the rear of Ruby-villas.

Foley-street.—HOUSE.—The large site in Foley-street, Ogle-street, and Cleveland-street, W.1, is being cleared of old buildings by Messrs. Willment Bros., Waterloo Bridge, S.E., for the erection of the proposed nurses' home for Middlesex Hospital. The building will have basement, ground and five upper floors, and has been designed by Mr. Alner W. Hall, F.R.I.B.A., 17, Southampton-street, W.C.1.

Fulham.—FACTORY.—Messrs. Coy & Wainwright, of 119, Moorgate-street, E.C., are the surveyors for the factory to be erected at Albert Wharf, Wandsworth Bridge-road. Messrs. W. J. Marston & Son are the builders. The constructional steelwork will be supplied by Messrs. Young & Co., 6, Queen Anne's-gate, S.W.1.

Fulham.—FACTORY.—A new factory, warehousing and office premises are to be erected at the Imperial Biscuit Works, Townmead-road, S.W.6, by Messrs. MacFarlane, Lang & Co., Ltd., biscuit manufacturers. Plans have been prepared by Messrs. J. M. Monro & Son, 134, Bath-street, Glasgow

Fulham.—CLUB.—Plans have been approved for the erection of a new club and hall, also 20 flats, on a site in Crabtree-lane and Rainville-road, S.W.6. The architect is Mr. S. Clough, A.R.C.A. (Arch.), 444, Strand, W.C.2.

Golders Green.—ADDITIONS.—Mr. C. E. Hanscomb, F.R.I.B.A., in consultation with Sir Edwin Lutyens, R.A., is the architect for the new additions which are to be erected at the Hampstead Garden Suburb Institute.

Great Tichfield-street. — WAREHOUSE. — A large warehouse, with frontages to Great Tichfield-street, Little Tichfield-street and Ridinghouse-street, W.1, and showrooms on ground and first floors, is to be built for Messrs. Francis, silk merchants. The builders are Messrs. Bovis, Ltd., 43, Upper Berkeley-street, W.1. Plans have been prepared by Messrs. Constantine and Vernon, 82, Mortimer-street, W.1. Excavations are now in progress on the site.

Hampstead.—ADAPTATION.—Mr. Herbert Jay, who has purchased the Hampstead Conservatoire, has decided to adapt it as a theatre. Plans have been prepared by Mr. Andrew Mather, 38, John-street, Bedford-row, W.C.

Hendon.—SCHOOLS.—The London County Council has approved the proposal of the Hendon Urban District Council to purchase the freehold of sites 4 and 5 for the erection of schools at Watling estate.

Hendon.—HOSPITAL.—The Hendon Urban District Council has given the contract for the erection of an isolation hospital to Messrs. Harry Neal, Ltd., of Northwood.

Herne Hill. — GARAGES. — Messrs. W. J. Mitchell & Son, builders, are to erect garages upon a site abutting upon Herne Hill and Milkwood-road.

Kilburn.—CONVERSION.—The Kilburn Empire is to be equipped as a cinema.

Notting Hill.—RECONSTRUCTION.—The Westminster Bank, Ltd., Lothbury, E.C.2, have recently purchased the premises at 46, Notting Hill High-street, W.11, which are to be reconstructed as branch offices. The plans have been prepared by Messrs. Arthur Blomfield & Driver, Grocers' Hall, Princes-street, E.C.2.

Paddington.—PREMISES.—Large extensions are being built at the premises at South Wharf, W.2, of the Retail Dairymen's Mutual, Ltd., including an extensive garage. The builder is Mr. William Simms, 591, Commercial-road, E.1. The steelwork is being supplied by Messrs. Archibald Dawnay & Son, Ltd., Battersea, S.W.8. Mr. H. A. Wright, 35, Pentonville-road, N.1.

Piccadilly-circus. — ADDITIONS. — Extensive additions are to be made to the premises of the Owner Drivers' Club in Criterion-buildings, W. The plans have been prepared by Messrs. Fitt & Prior-Hale, L.R.I.B.A., 3, John-street, W.C.1.

Portman-square.—REBUILDING.—The whole of the east side of Portman-square, W.1, comprising Nos. 2-9, and covering over an acre of land, has been purchased by the Prudential Assurance Co. The company propose to build a huge block of residential flats, with a row of shops on the ground level.

Southall.—THEATRE.—A new theatre, to be called the Royalty, is to be built on the site of the 300 years old market at Southall. The building, it has been stated by Mr. Sydney Blow, the dramatist, who is the head of the syndicate, is to be begun in April, and when completed will accommodate 1,500 people.

St. Pancras.—DWELLINGS.—The L.C.C. recommend £72,000, submitted by the Finance Committee in respect of the erection of the central (No. 1) block of dwellings on Ossulston estate, St. Pancras, including foundations and incidental expenses.

St. Paul's Churchyard.—BUILDING.—Messrs. Hitchcock, Williams & Co., Ltd., warehousemen, propose to rebuild the whole of their showrooms in St. Paul's Churchyard and Paternoster-row, E.C.4. The architects are Messrs. Searle & Searle, Paternoster House, E.C.4. The contract has been placed with Messrs. F. & H. F. Higgs, Ltd., Herne Hill, S.E.

Stoke Newington.—REBUILDING.—Messrs. Courage & Co., Ltd., brewers, propose to rebuild their "Prince of Wales" public-house in Allen-road, to the plans of Mr. Kirby, brewery architect. The builder is Mr. William Simms, 591, Commercial-road, E.1.

Tavistock-square.—BUILDING.—Messrs. J. Ashton & Sons, 109, Stoke Newington-road, N.16, are to pull down old buildings in Tavistock-square and Upper Woburn-place, W.C.1, preparatory to the erection of two large wings, etc., at the headquarters of the British Medical Association. The plans have been prepared by Mr. C. Wontner Smith, F.R.I.B.A., Gray's Inn-square, W.C., and will ultimately involve an expenditure of £300,000.

Tower Hill.—MEMORIAL.—The contract for the memorial to the missing dead of the mercantile marine has been placed with Messrs. Holloway Bros. (London), Ltd., Bridge Wharf, Grosvenor-road, S.W.1. Sir Edwin Lutyens, R.A., Queen Anne's-gate, S.W.1, is the architect.

Trafalgar-square.—BUILDING.—Sir Joseph Duveen has announced his intention of defraying the cost of building a new wing at the National Gallery. The work will be carried out under the supervision of H.M. Office of Works, whose chief architect is Sir R. J. Allison, F.R.I.B.A.

Upper Rathbone-place.—WAREHOUSE.—A large warehouse is to be built on the site of Nos. 4-10, Upper Rathbone-place, W.1, to the designs of Mr. H. Austen-Hall, F.R.I.B.A., 8, Old Jewry, E.C.2. The builders are Messrs. William Downs, Ltd., Hampton-street, S.E.17.

Walthamstow.—SCHOOL.—The Education Committee of Walthamstow has accepted the tender of Mr. Hifferson, of London and Norwich, for the erection of a school to accommodate 400 children in Billet-road, E.17. Mr. H. Prosser, F.R.I.B.A., is the architect.

Walthamstow.—HOUSES.—Plans have been passed by the Urban District Council for the erection of 44 houses in Nightingale-avenue for Messrs. West Bros. & Pettet, and 48, in Corbett-road and Woodlands-road, for Mr. J. A. Tarry.

Walworth.—REBUILDING.—The Walworth Wesleyan Church in Camberwell-road, S.E., is to be rebuilt, towards the cost of which over £28,000 has already been raised. New schools and boys' and girls' clubs will be erected on an adjacent site. The plans are being prepared by Mr. Edward Maufe, F.R.I.B.A., Raymond-buildings, W.C.

Watford.—SHOPS.—Messrs. Harry Neal, Ltd., of Northwood, are building a block of shops at Watford, and the architects are Messrs. Elcock & Sutcliffe, FF.R.I.B.A.

Wembley. — FACTORIES. — The L.N.E.R. have taken over a number of buildings, including "South Africa" and the Government pavilion, which formed part of the British Empire Exhibition at Wembley. The area now available for industrial purposes is about 50 acres.

Woolwich. — WAREHOUSE. — Mr. S. W. Ackroyd, architect, Commonwealth-buildings, Albion-road, Woolwich, on behalf of the Royal Arsenal Co-operative Society, Ltd., has submitted an application to the Borough Council for erection of a grocery warehouse in Albion-road, Woolwich.

BUILDERS' MERCHANTS AND THE NEW FORM OF CONTRACT

On Monday, at the Connaught Rooms, Great Queen-street, Kingsway, W.C., there was a well-attended meeting of builders' merchants, sub contractors, specialists and others interested in the revised Form of Building Contract now under consideration. The meeting was convened by the Builders' Merchants' Alliance, and Mr. T. A. McIntyre (of Messrs. Shanks & Co., Ltd., and who on this occasion represented the Enamelled Sanitary Fireclay Manufacturers' Association) was voted to the chair.

There was before the meeting a document explaining the objections which the Builders' Merchants' Alliance have to the proposed form of contract, also the following suggested resolutions:—

Resolution No. 1.

That this meeting, being of the opinion that (1) the Revised Form of Building Contract is objectionable to sub-contractors and/or suppliers of goods for the following reasons among others:

First.—Because it provides in effect that any sub-contractor and/or supplier of goods for which prime-cost items or provisional sums are included in the specification or bills of quantities must enter into a sub-contract of which one of the terms is that no money shall be due to him from the contractor until the contractor has himself been paid for such goods by the employer;

Secondly.—Because it includes no provision similar to that in Clause 28 of the 1909 Form, under which the employer can pay direct to sub-contractors amounts specified by the architect;

Resolves.—That further pressure be brought to bear upon the bodies responsible for the Form for the purpose of securing the desired amendments, and the Builders' Merchants' Alliance, Ltd., has the wholehearted support of this meeting in its efforts to secure these amendments.

Resolution No. 2.

That the words "or supplying any goods" in Clause 25 (1) should be omitted, because firms who do not fix or install goods or materials they may supply are not sub-contractors, and should not be subject to the terms and conditions applicable to sub-contractors.

Resolution No. 3.

That this meeting of representatives of trade and other associations, sub-contractors and/or suppliers of building materials, requests the Royal Institute of British Architects and the National Federation of Building Trades Employers to receive a deputation in order that the views of "specialists, merchants, tradesmen and others" may be laid before them, with the object of proving the necessity for amendments in certain clauses of the proposed new Form of Building Contract, which clauses, as drafted, are both unacceptable and impracticable.

The Chairman said that after the last meeting of the Builders' Merchants' Alliance on January 20 their secretary had got off nearly two hundred communications to associations of traders and others interested. Many of the recipients had sent protests thereupon to the National Federation of Building Trades Employers and to the Royal Institute of British Architects, while sympathetic replies had been received by the Builders' Merchants' Alliance, among others, from an association of architects in the North of England and from an important master builder in London. The executive council of the builders had met on January 24 and approved and adopted the New Form of Contract. On the morning of the 25th a letter from the Builders' Merchants' Alliance had appeared in the *Times*, and in the afternoon of that same day the Council of the R.I.B.A. had met, a general meeting following in the evening. The Council had recommended to the general meeting to accept the new model Form of Contract, but that recommendation had not been accepted, and an adjournment for at least six weeks had been made. On January 31 the builders had issued a letter to those who had protested, saying that the contract should be submitted to the test of practical experience before indicating further modifications. Thereafter the sub-committee of the Builders' Merchants' Alliance had met to consider the situation, and had sent a letter to the trade Press. This letter had appeared in *The Builder* on January 17, and a reply from the Secretary of the N.F.B.T.E. was published in the same journal the next week. The present discussion dealt with sub-contracts and supplying of goods to satisfy p.c. sums. It had nothing to do with goods that should be specified to be purchased in the market as the builder might think fit. Sub-contractors who installed, and those who only supplied, goods to satisfy p.c. sums were on common ground to some extent.

The Chairman then moved all three resolutions.

Mr. M. G. Goslett (Alfred Goslett & Co., Ltd.) seconded the resolutions, and all three came under discussion.

Mr. Stanley J. Benham said the proposed agreement was open to the possibility of fraud.

Mr. J. C. Smith (National Federation of Plumbers and Domestic Engineers) said there should be words in Resolution 3 asking the R.I.B.A. and the N.F.B.T.E. not to ratify the New Form of Contract until some form of contract had been submitted to sub-contractors.

Mr. Will Mellor (Confederation of National Associations of Sub-Contractors) supported the resolutions. He said any form of sub-contract must be based in essence on the main contract. The interests represented by the present meeting must be considered in the main contract; they could not be considered separately.

The Chairman said a form of sub-contract had been under consideration for a long time, but if a sub-contract did not meet the wishes of the builder he might refuse to enter into it. It was therefore absolutely essential that the main contract must be right.

After several others had spoken it was agreed that the third resolution be amended by adding to it words requesting the two great bodies therein referred to not to ratify the New Form of Contract until a form of sub-contract had been submitted to the sub-contractors and agreed.

Among many other points that arose in the lengthy discussion that followed it was suggested that Clause 28 of the 1909 Form of Contract, the restoration of which appeared to be the immediate object of the meeting, was very unsatisfactory. It was proposed that the 1920 Form be restored.

The Chairman said it would be better to have the 1920 Form, but the sub-committee had a feeling that if they asked for too much they might get nothing. Sub-contractors were more likely to be successful if they reduced their demands to the minimum.

Mr. Bradford (Association of Floor Constructors) said most of their difficulties would disappear if they could get a reasonable form of sub-contract agreed to. In a form of sub-contract his association had prepared every point raised in this meeting was covered. In that form they said the builder had no right to apply for any payment on account without notifying the sub-contractor who did the main part of the work, and they asked the architect not to issue any certificate without notifying every sub-contractor the amount of money included in the certificate. Another thing was that no contractor should settle his account, taking a percentage off, without consulting every sub-contractor. The builder sometimes gave a discount, and then called on the sub-contractors each to bear a portion of the loss. Payment was not the only point. At a contract in Regent-street the whole of the contractors were notified to meet the owner. Twenty-two turned up; the only one who did not was the principal contractor, who had no reason to go because he had no men on the job. All those twenty-two sub-contractors put materials on the job, and those materials automatically became the property of the owner. That was what sub-contractors wanted to avoid.

The Chairman said the meeting had better get back to the question of whether they asked for the 1909 clause to be continued or for the 1920 clause to take its place; and after some further discussion it was agreed that in the paragraph commencing "secondly" in Resolution No. 1 the words "similar to that in Clause 28 of the 1909 form" be omitted.

The second resolution was subjected to a lengthy discussion. One proposal was that it should be omitted altogether. Eventually it was carried in the following form:—

"That firms who merely supply and do not fix or install goods or materials should not be subject to the terms and conditions applicable to sub-contractors who supply and fix their materials under the terms of their sub-contract."

The resolution with regard to sending a deputation was carried, and then all three resolutions as amended were put and carried unanimously. The original idea of the deputation being elected directly by the meeting was, however, to some extent modified. A committee with power to add to their number were elected, and authorised to appoint either from among themselves or those they co-opted a deputation to wait upon the R.I.B.A. and the N.F.B.T.E. The committee consisted of the following gentlemen: Mr. T. A. McIntyre, Mr. M. G. Goslett, Mr. J. C. Smith, Mr. Will Mellor, Mr. J. W. Alder (Confederation of National Association of Sub-Contractors), Mr. J. L. Musgrave (Joint Specialists' Association), Mr. Cash (Joint Specialists' Association), Mr. Wm. Morris (Metal Windows Association), Mr. Bradford (Association of Floor Constructors), Mr. J. A. Pratt (London Association of Slate Merchants, Master Slaters and Tilers), Mr. Jas. Halliday, of Francis Morton & Co., Ltd., constructional engineers.

MONKS AND CANONS AND THEIR BUILDINGS

Sir Banister Fletcher, F.S.A., F.R.I.B.A., lecturing on "English Architecture" at the Central School of Arts and Crafts, dealt with the rise of monasticism and its relation to England, the monasteries and cathedrals, and parish churches. The most striking trait of English monastic history, he said, was the effect it had on the evolution of English monasteries and cathedrals. A monastery was complete in itself, much like a model village with the addition of an enclosing wall and great entrance gates. It contained all the buildings required for the daily life of the inmates, from Chapter house, library, and sacristy, to refectory, dormitory, guest-house, kitchen, and infirmary; while there was usually the mill-stream for the grinding of corn, and fish-ponds adjacent. Above all towered the monastic church, upon which all the art of the time was usually lavished; and this was the feature which remained, often when the monastic buildings had gone. On the dissolution of the monasteries by Henry VIII., some were reconstructed as chapters for secular canons, when the abbot became a bishop and the monastic church a national cathedral.

RATES OF WAGES IN THE BUILDING TRADE

[Every endeavour is made to ensure accuracy but we cannot be responsible for errors.]

	Masons.	Brick-layers	Car-penters Joiners.	Plas-terers.	Slaters.	Plum-bers.	Pain-ters.	Lab-ourers.
Aberdare	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Accrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Alfreton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Alnwick	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Altrincham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashford (Kent)	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Ashington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashton-under-Lyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Aylesbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Aylsham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Banbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Barnsley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barnstaple	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Barrow-in-Furness	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Basingstoke	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Bath	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bedford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Berwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bexhill	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Birkenhead	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Birmingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bishop Auckland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackburn	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackpool	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bolton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bournemouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bradford	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bradford-on-Avon	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Braintree	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Brentwood	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bridgwater	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Bridlington	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Brighton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bristol	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bromsgrove	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bromyard	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Bungay	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Burnley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Burton-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Buxton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Cambridge	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Canterbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Cardiff	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Carlisle	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chatham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Chelmsford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Cheltenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Chester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chesterfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chorley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cirencester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Clacton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Colchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Coventry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cranbrook	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Crewe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cromer	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Darlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Deal	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Denbigh	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Derby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Devizes	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Dewsbury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Doncaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Dorchester	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Dorking	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Dovercourt	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Driffield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Droitwich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Dudley	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Durham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Eastbourne	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
E. Glam. (Mon. Val.)	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ely	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Exeter	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Exmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Fakenham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Felixstowe	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Folkestone	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Frome	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Glossop	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Gloucester	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Godalming	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Goole	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Gosport	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Grantham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Great Yarmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Grimsby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Guildford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Halifax	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harpenden	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Harrogate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hartlepools	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Hatfield	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hednesford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Hereford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Herne Bay	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Hertford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hitchin	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hoddesdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Holt	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Huddersfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hull	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hunstanton	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Huntingdon	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Isle of Wight	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Ipswich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Keighley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Kettering	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Kidderminster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
King's Lynn	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Lancaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2

	Masons.	Brick-layers.	Car-penters Joiners.	Plas-terers.	Slaters.	Plum-bers.	Pain-ters.	Lab-ourers.
Leeds	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leicester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leighton Buzzard	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Lichfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lincoln	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Littlehampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Liverpool	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Llandudno	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Llanelly	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
London:								
12 m. radius	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
12-15 m. radius	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/3½
Loughborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Lowestoft	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Luton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Macclesfield	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Maidstone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Malvern	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Manchester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Mansfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Margate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Market Harb'rough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Matlock	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Melton Constable	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Melton Mowbray	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Merthyr Tydfil	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Middlesbrough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newark	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Newbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Newcastle-on-Tyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newcastle-ur-Lyme	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
New Forest	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newmarket	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Newport, Mon	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Nottingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Nuneaton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Oldham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oxford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Paignton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Peterborough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Plymouth	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2½
Pontypridd	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Portsmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Preston	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ramsgate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Reading	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Redcar	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Redditch	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Reigate	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Retford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Ripon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Rochdale	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Rochester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Rugby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Saffron Walden	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
St. Albans	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
St. Helens	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sawbridgeworth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Saxmundham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/8½	11½
Scarborough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Sevenoaks	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Sheffield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Shrewsbury	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Sittingbourne	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Southampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southend-on-Sea	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Southport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
South Shields	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stevenage	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Stockport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stockton-on-Tees	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stoke-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stourbridge	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stourport	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stowmarket	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Stratford-on-Avon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Stroud	1/5	1/5	1/5	1/5	1/5	1/5	1/4½	1/0½
Sunderland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swaffham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Swansea	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swindon	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Tamworth	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Taunton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Thetford	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Torquay	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Totnes	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Trowbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/3	1/0
Tunbridge Wells	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Uttoxeter	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Wakefield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Walsall	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wallsend	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warminster	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Warrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warwick	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wells (Norfolk)	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Welwyn Gar. City	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
West Bromwich	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Weston-sup.-Mare	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Weymouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½
Whitby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wigan	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Winchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Windsor	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wisbech	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Wolverhampton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Woodbridge	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Worcester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worksop	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Worthing	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Wrexham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Wroxham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Wymondham	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
York	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½

For rates of wages in the Building Trade in Scotland, see page 396

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—**Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect, C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.**

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, ETC.

MARCH 5.

Aberbargoed.—Painting.—Of P.D. Workmen's Hospital, Aberbargoed. Secretary.

Aylsham.—Cottages.—Aylsham (Yaxley's-lane), 6; Banningham, 2; Swanton Abbott, 4; Wood Dalling, 4; for R.D.C. E. R. Larner, 24, King's-rd., East Dereham. Dep. 10s.

Blean.—School.—For Kent E.C. W. H. Robinson, F.R.I.B.A., Room 69, Sessions House, Maidstone. Dep. £2 2s.

Conway.—Drill Hall.—Drill hall and company headquarters at Conway, for Caernarvonshire Territorial Army Association. Ll. Lloyd Jones, architect and surveyor, Lloyd's Bank-chambers, Caernarvon. Dep. £1 1s.

Essex.—School.—Erection of new elementary school at Dunton, for the Essex E.C. Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old Court, Chelmsford. Dep. £2 2s. to F. H. Owers, F.S.A.A., County Accountant, Duke-st., Chelmsford.

Galway.—Disinfector.—Steam boiler and steam jacketted disinfecter, at County Home, Loughrea, for County Board of Health. M. F. O'Keeffe, B.E., Portumna.

Grays.—Building.—New police station and court houses, for Essex C.C. Jno. Stuart, F.R.I.B.A., C.A. Dep. £2 2s.

***Kent.**—School.—At Blean, near Canterbury, for the E.C. E. Salter Davies, Dir. of Edu., Springfield, Maidstone, Kent. Dep. £2 2s. (payable to K. E.C. and crossed).

Kent.—Painting.—Painting and general repairs to be carried out at certain school premises, for E.C. E. Salter Davies, Director of Education.

King's Langley.—Cottages.—24 on Council's housing site, Blackwell-rd., for Hemel Hempstead R.D.C. T. H. Lighbody, architect, 32, Alexandra-rd., Hemel Hempstead. Dep. £1 1s.

London.—Offices.—Municipal offices in Spa-rd., Bermondsey, for Bermondsey B.C. E. Goff Clark, Town Clerk, Town Hall, Spa-rd., S.E.16. Dep. £3 3s.

London.—Houses.—68 houses off Durnsford-rd., Wimbledon, for Wimbledon B.C. B.E. and S.

London.—Houses and Flats.—Erection of various types, for the Wimbledon B.C. B.E. and S., Town Hall, Wimbledon.

Preston.—Remodelling.—Also dressing and office accommodation at the Moor Park Open-Air Baths, for C.B. W. Platt, B.E. and S.

***Rochfort.**—Block of Buildings.—At Poor Law Institution for senile dementia patients, for the Guardians. Norman Evans, L.R.I.B.A., 41, High-street, Southend-on-Sea. Dep. £1 1s.

Sandy.—Houses.—10, in the parish of Sandy, for the U.D.C. F. W. Western, Clerk. Dep. £2 2s.

Slough. — Destructor. — At Chalvey Pumping station, for U.D.C. A. Bromly, S.

Treeton.—Removal.—Of dividing wall in infants' department and other alterations at Treeton Council school, for West Riding E.C. A. Adcock, Divisional Clerk, Education Office, "Craigmore," Godstone-rd., Rotherham.

West Bromwich. — Building. — Electricity substation and transformer raft at electricity works, Old Meeting-st., for West Midlands Joint Electricity Authority. Chief Engineer, Phœnix-buildings, Dudley-rd., Wolverhampton. Dep. £3 3s.

Weymouth.—Lavatory Accommodation.—At 1, Wyke-rd., for B.G. G. A. Andrews, architect and surveyor, 157, Dorchester-rd.

Worsborough.—Houses.—10 houses, furnace-yd., Worsborough-bridge, for U.D.C. T. Shield, S.

MARCH 6.

Cwmbran.—Houses.—10, on Penywain housing site, for Llantarnam U.D.C. S.

Mitcham.—Buildings.—Laying-out and draining and erection of certain buildings in connection with proposed new recreation ground at Devonshire-rd., Colliers Wood, Merton, S.W.19, for U.D.C. Surveyor, Broadway House, London-rd., Lower Mitcham.

Nuneaton.—Painting.—Outside, etc., at Poor Law Institution, for B.G. H. N. Jepson, architect, Stratford-st.

Sheffield. — Painting. — Internal and external painters' work at: (1) Corporation-st. baths, (2) Heeley baths, for T.C. W. Geo. Davies, F.R.I.B.A., City Architect. Dep. £1.

MARCH 7.

Antrim.—Additions.—To Randalstown dispensary residence, for B.G. J. L. Clark, C.

Cardiff.—Conveniences.—Ladies' public convenience at recreation ground, Park-rd., Whitchurch, for R.D.C. W. Farrow, E., 20, Park-pl.

***Chatham and Sheeburyness Area.**—Term Contracts (War Dept.) from April 1, 1928, for repairs and materials. Commanding Royal Engineer, R.E Office, Inner Lines, Chatham.

Clacton.—Kiosk.—On West Cliff, for U.D.C. S.

Clacton.—Alterations.—Also additions to child welfare centre, Skelmersdale-rd., for U.D.C. S.

Clacton.—Additions.—To conveniences in West Cliff, near Jetty, for U.D.C. S.

Clacton.—Shelters.—2 shelters on West Greensward, for U.D.C. S.

Leeds.—Joinery, etc.—For B.G. J. H. Ford, C.

North Berwick.—Houses.—5 houses and steadings on Rhodes farm, for Board of Agriculture for Scotland. Chief Surveyor, York-buildings, Queen-st., Edinburgh. Dep. £1 1s.

North Walsham.—Additions.—Also additions to Paston school. S. J. Wearing, F.R.I.B.A., 3, Redwell-st., Norwich. Dep. £1.

Plymouth.—Repairs.—Also painting at public library, Devonport, for C.B. J. Wibberley, Borough Engineer, Surveyor and Architect. Dep. £1 1s.

Rochford.—Telephone Exchange.—For the Commissioners. Contracts Branch, H.M.O.W., King Charles-st., S.W.1. Dep. £1 1s.

St. Boswells.—Offices.—Education offices, Newtown St. Boswells, for Roxburgh E.C. Reid & Forbes, architects, 7, Ainslie-place, Edinburgh.

Stoke-on-Trent.—Repairs.—To houses at Longton, for T.C. E. B. Sharpley, T.C.

Swords.—Building.—Construction and fitting of new sanitary blocks and drainage scheme at new borough schools, Swords, Co., Dublin, for Board of Governors. Francis P. Russell, architect, 7, D'Olier-st., Dublin. Dep. £1 1s.

MARCH 8.

Belfast.—School.—Elementary school in Limestone-rd., for C.B. Education Architect, Victoria-st. Dep. £2 2s.

Cork.—Installation.—Of a hot water heating apparatus at Command Stores, Collins Barracks, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works, Dublin. Dep. £1.

Glasgow.—Houses.—30, at Keppochill-rd., for T.C. D. Stenhouse, T.C.

Meopham.—Cottages.—4, at Longfield-rd., for Strood R.D.C. L. Randerson, S., Meopham. Dep. £5.

Newcastle-on-Tyne.—Telephone Exchange. — At Benton, for the Commissioners. Contracts Branch, H.M.O.W., King Charles-st., S.W.1. Dep. £1 1s.

Recarson.—School.—Public Elementary School at Recarson, Omagh, Co. Tyrone, for County Tyrone E.C. J. M. Robinson, architect, 7, Market-buildings, Strand-rd., Londonderry.

Stepney.—Coal Storage Pits, Foundations and Concrete Walls.—Construction of, at Limehouse electricity generating station, Narrow-st., Stepney, for the B.C. Bernard J. Belsher, M.I.C.E., M.I.M.E., B.E. and S., Municipal Offices, Raine-st., E.1. Dep. £5 (Treasury notes).

MARCH 9.

***Guildford.**—Pump Houses and Manager's Residence.—Erection of, for the Corporation. Percy Griffith, consulting engineer, 39, Victoria-st., Westminster, S.W.1.

Dundee.—Additions.—Also alterations to Slaughter Houses, for T.C. G. Baxter, City Engineer, 91, Commercial-st.

Ireland.—Building.—Erection of stations at Cloonark, Co. Roscommon, and Dungourney, Co. Cork, for Commissioners of Public Works. T. Cassedy, secretary, Office of Public Works, Dublin Dep. £1 each.

Leeds.—Wiring.—For lighting of disinfector house at St. Mary's Infirmary, Hill Top, Armley, for B.G. J. H. Ford, C.

London, E.14.—Flats.—80, for the Poplar B.C. B.S. Dep. £3 3s.

London.—Pressure Filters and Appurtenant Works.—Installation of, at new swimming bath, for the Deptford B.C. B.E. and S. Dep. £1 1s.

London.—New Swimming Bath.—At Lauriegrove, for Deptford B.C. B.E. and S. Dep. £2 2s.

Pontefract and Selby.—Works and Materials.—For a period of 3 years. War Dept. Contract Comm., Royal Engr., R.E. Office, 13, Wenlock-ter., York.

MARCH 10.

Barnes.—Sub-station.—Electricity, for U.D.C. W. T. Goodale, C.

Bridgnorth.—Shed.—At casual wards of workhouse, for B.G. E. Trevor, B.S.

Cheadle and Gatley.—Houses.—40, on Oak-rd. housing site, Cheadle, and 20 on Adswood housing site, Adswood, for U.D.C. S. Dep. £1 1s.

Conway.—Painting.—Cleaning, scraping and painting of Conway Suspension Bridge, for Suspension Bridge Commissioners. D. A. Delamotte, Engineer, Town Hall, Conway. Dep. £1 1s.

Marple.—Houses.—12, on Brindley Farm housing site, for U.D.C. D. J. Diver, S. Dep. £1 1s.

New Windsor.—Floor.—Construction of about one acre of concrete to form the floor of an open-air Public Car Park and other work in connection therewith, for T.C. E. A. Stickland, B.E., 16, Alma-rd.

Portadown.—Extension.—Building and completing a memorial tower and extension to parish church. H. Seaver, architect, 16, Donegall-sq. South, Belfast. Dep. £2 2s.

Porth.—Building.—Corrugated iron sheets around the Llethrddu Field, Porth, for District Hospital. J. Albert Davies, secretary, Porth and District Hospital, Porth, Rhondda.

Tewkesbury.—Conveniences.—In Station-st., for T.C. B.S.

MARCH 12.

Edinburgh.—Extension.—Of siding accommodation for electric power station, at Westbank, Portobello, for T.C. B.E.

Halifax.—Building Works, etc.—For War Department. Commanding Royal Engineer, 13, Wenlock-terr., York.

***Hampton.**—Tenements.—Erection of 90, for the U.D.C. on Rosenhill estate and Wembley-rd. Sidney H. Chambers, S., Public Offices, Hampton, Middlesex.

***London.**—Repairs.—To the properties included in housing schemes for 12 months, for the Hammersmith B.C. R. Hampton Clucas, M.I.C.E., B. E. and S., Town Hall.

***London.**—New Public Convenience.—At Eelbrook Common, for Fulham B.C. B. E. and S., Town Hall, Fulham. Dep. £2 2s.

Macclesfield. — Working-class Dwellings. — On Coalpit-lane housing estate, for the B.C. Edward Hamson, A., Town Hall. Dep. £2.

Northchurch.—Houses.—8 houses, for Berkhamsted R.D.C. J. Oakes, S. Dep. £2 2s.

Semington.—Rebuilding.—Laundry block at Institution, for Trowbridge and Melksham B.G. W. W. Snailum, architect, Church-st.

MARCH 13.

Bentley-with-Arksey.—Conveniences.—Also alterations, at Arksey Council school, for West Riding E.C. Education Department, County Hall, Wakefield.

Clitheroe.—Additions.—Alterations and additions to Sawley Council school, for West Riding E.C. Education Department, County Hall, Wakefield.

Conisborough.—School.—Caretaker's house at new Middle School, for West Riding E.C. Education Department, County Hall, Wakefield.

Gosforth.—Houses.—6 two-roomed, on Coxlodge housing estate, for U.D.C. Geo. Nelson, E. and S

London.—Improvements.—Masons' and paviors' works, for City Corporation. City Engineer, Portland House, Basinghall-st., E.C.2. Dep. £2 2s.

Maltby.—Extension.—Extension of low-pressure hot-water installation, and installation of electric lighting, at Council school, for West Riding E.C. Education Department, County Hall, Wakefield.

Markham.—Institute.—For the Markham Village and District Welfare Association. A. F. Webb, L.R.I.B.A., & Son, architects, Tredegar-chambers, Blackwood, Mon. Dep. 3 3s.

Norton.—School.—New school for 240 children, for West Riding E.C. Education Department, County Hall, Wakefield.

MARCH 14.

***London.**—New Maple Floor.—To ward at St. Andrew's hospital, Bromley-by-Bow, for B.G. Harley Heckford, M.Inst.C.E., A., Council Offices, High-st., Poplar. Dep. £1 1s.

London.—Building Works.—Extension and completion of electricty sub-station for Metro. B.C. of Hackney. B. Elec. E., 18-24, Lower Clapton-rd., E.5. Dep. £2 2s.

West Bromwich.—Heating.—Electric lighting of medical officers', etc., quarters, and hot-water and heating services, medical officers', etc., quarters, at Hallam Hospital, for B.G. Edwards & Shaw, Consulting Engineers, 105, Colmore-row, Birmingham. Dep. £2 2s.

MARCH 15.

Dewsbury.—Alterations.—23, The Town, Thornhill, 1 privy conversion and 75 to 105, Overthorpe-rd., Thornhill, 16 privy conversions, for C.B. Chief Sanitary Inspector.

***Hounslow.**—Alterations and Additions.—To Telephone Exchange at Hounslow, for Commissioners H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Kerry.—Reconstruction.—Of Castleisland Courthouse and Library, for C.C. W. F. Quinlan, secretary, Courthouse, Tralee.

Luton.—Alterations.—To provide temporary isolation wards at infirmary, for B.G. W. H. Guest Hubbard, architect, 35, Manchester-st.

Walsall.—Hospital.—At Goscote-lane, for the C.B. J. Taylor, B.E. and S. Dep. £3 3s.

MARCH 16

Bristol. — Painting. — Also repairs, etc., at Guardians' Homes for Children, the Crescent, Downend, for B.G. T. S. Lamb, C.

***Coventry.**—Demolition Work.—Demolition and removal of certain buildings in the City of Coventry. E. H. Ford, A.M.Inst.C.E., City E. and S. Dep. £1 1s. to City Treasurer.

Uckfield.—Conversion.—Of Foresters' Hall into a practical instruction centre, for East Sussex C.C. E. A. Verger, L.R.I.B.A., County Architect, 10, North-st., Lewes. Dep. £1 1s.

***Watford.**—Parlour Houses.—Erection of 24 in Blackwell-drive, for the Corporation. W. W. Newman, B.E., Municipal Offices, 14, High-st. Dep. £2 2s. to Borough Treasurer.

MARCH 17.

Blackburn.—Elementary school and works at Roe Lee Park, for C.B. H. M. Webb, B.Sc.(Eng.), London, Assoc.M.Inst.C.E. B. and Water E., Town Hall. Dep. £2.

Ilford.—School Buildings.—At Barkingside, for the B.C. H. Shaw, A. to E.C. Dep. £5 5s.

MARCH 17.

Wellington.—Houses.—64 non-parlour type, on Orleton-lane housing site, for U.D.C. W. Walker, E. and S. Dep. £2 2s.

MARCH 19.

Beckenham.—School.—For the U.D.C. Clerk. Dep. £5 5s.

London.—Dwellings. — Two blocks, for the L.C.C., at Islington. Architect to the Council, The County Hall (Room No. 3), Westminster, S.E.1. Dep. £2.

Shoreham-by-Sea.—Houses.—60 houses, making-up roadways, etc., on land adjoining Dolphin-rd., Kingston-by-Sea, for U.D.C. Surveyor.

MARCH 21.

London.—Lighting, etc.—Building of brickwork settings for four boilers and economiser, and installation of electric lighting, power, and telephones, for M.A.B. T. Cooper, Engineer. Dep. £1

MARCH 22.

Newton Abbot.—Houses.—90, on Broadlands housing site, for U.D.C. C. D. White, surveyor.

Reading.—Houses.—34, on sites in Westbourne-terr., Gosbrook-rd., Auckland-rd., and Wykeham-rd., for C.B. Housing Architect. Dep. £2 2s.

MARCH 23.

***London.**—Building.—Erection of Central Block at the P.O. Research Station, Dollis-hill, N.W., for the Commissioners H.M.O.W. Contracts Branch, King Charles-st., S.W.1. Dep. £1 1s.

MARCH 24.

Bakewell.—Wiring.—Electric lighting, wiring, and accessories about to be installed at Poor Law Institution, for B.G. Alfred Hawes. Dep. £1 1s.

MARCH 26.

Cwmbran.—Houses.—10, on Penywain housing site, for Llantarnam U.D.C. S.

***Greenwich.**—Repairs and Re-decorative Works.—To housing estate at Charlton, for the Metro. B.C B.E., Town Hall, Greenwich-rd.

London.—Repairs.—Repairs and redecorative works to certain houses in Council's housing estate at Charlton, for Greenwich B.C. B.E.

MARCH 28.

Mickleover.—Hospital.—Admission hospital of 160 beds adjoining the Mental hospital at Mickleover, near Derby, for Derby County Mental Committee. G. H. Widdows, F.R.I.B.A., architect, Derby. Dep. £1 1s.

MARCH 31.

Skeirinoe. — Building. — Concrete beacons on Skeirinoe and Guanachan Rocks in The Minch, for Northern Lighthouses Commissioners. D. A. Stevenson, 84, George-st., Edinburgh. Dep. £2 2s.

NO DATE.

Birmingham.—Baths.—Public bathing establishment at Stratford-rd., Sparkhill, for T.C. Rd. Hoggins, Superintendent Engineer. Dep. £3 3s.

Bristol.—Alterations.—To Christ Church School, Princess Victoria-st. Major Biggs-Davison, 10, Yorkgardens, Clifton.

Burnham-on-Sea. — Rooms. — Court rooms and Magistrates' rooms, Burnham-on-Sea, for Somerset C.C. A. J. Toomer, C.A., Lloyds Bank-chambers, West-st., Weston-super-Mare. Dep. £2 2s.

Cassington.—Hall.—For Cassington Village Hall Committee. J. R. Bolton, secretary, Town Clerk's Office, Woodstock, Oxford.

Castletown.—Building.—Of a retaining wall, regrading, etc., of School Grounds, at Kinneigh Schools. P. O'Connell, P.P., St. Mary's, Enniskean.

Dundee.—Improvements.—(1) Ann-st. school—plumber work on roof of school, and (2) St. Mary's R.C. school, Forebank—joiner work and painter work of alterations, for E.C. Master of Works, Education Office.

Kenmare.—Residence.—At Gurtamullin. Courtenay's, Victualler, Kenmare.

Llwyngwril. — House. — House and shop at Llwyngwril. C. F. Ellis, L.R.I.B.A., Chartered Architect, Aberdovey.

Portsmouth.—Painting.—Demolition of a brick chimney, 120 feet high, and painting a steel chimney shaft 200 feet high, at Electricity Generating Station, Gunwarf-rd., for T.C. B. Handley, Engineer and Manager.

Southam.—Houses.—16, at Southam, for R.D.C. Quick & Lee, architects, 11, Waterloo-place, Leamington.

Stanley.—Walls.—Mortuary boundary walls, for U.D.C. J. D. Macleod, architect, Outwood, Wakefield.

Wells.—Installation.—Electrical wiring installation at Hospital, for Somerset and Bath Mental Hospital Committee. H. T. Sully, Consulting Electrical Engineer, Scottish Widows'-buildings, Bristol. Dep. £3 3s.

Whitehaven.—Additions.—To Nos. 16, 17 and 18, George-st. R. Bentley & Son, chartered architects, Church-st.

MATERIALS, ETC.

MARCH 5.

Alfreton.—Highway Materials.—For U.D.C. R. F. Ward, S.

Clutton.—Stone.—For R.D.C. T. Orchard, S.

Crompton.—Road Materials.—For U.D.C. F. T. Jones, E. and S.

Dunmow.—Road Materials.—For R.D.C. P. R. Furlong, Highway Surveyor.

Sevenoaks.—Cement, etc.—For U.D.C. S.

Southwell.—Road Materials.—For R.D.C. R. Morris, Highway S.

Stoke-on-Trent.—Highway Materials. City S.

Strood.—Highway Materials.—For R.D.C. L. Randerson, District Surveyor.

Thingoe.—Stone.—For R.D.C. C. D. Bright, S., 65, Churchgate-st., Bury St. Edmunds.

Winsford.—Road Materials.—For U.D.C. S.

MARCH 6.

Bangor.—Sand.—For T.C. J. Milliken, T.C.

Belfast.—Plumbers' Materials.—For B.G. C.

Epping.—Highway Materials.—For R.D.C. F. Forrester, S.

Horsham.—Road Materials.—For R.D.C. W. R. Guilford, S., 42, Albion-terr.

Kingston.—Builders' Materials.—For B.G. C.

Maltby.—Road Materials.—For U.D.C. M. R. Jones, E. and S.

MARCH 7.

Bucklow.—Stone, etc.—For R.D.C. R. C. Cordon, S.

Clacton-on-Sea.—Road Materials.—For U.D.C. C.

Cuckfield.—Road Materials.—For R.D.C. R. L. Richardson, S.

Dewsbury.—Road Materials.—For C.B. H. Dearden, B.E.

Dover.—Highway Materials.—For Harbour Board. Rutley Mowll, Register of Dover Harbour Board.

Dublin.—Builder's Materials.—For B.G. J. P Condon, C.

Gravesend.—Stone, etc.—For T.C. F. T. Grant, E. and S.

London.—Builders' Materials. — For Holborn B.G.C.

Morley.—Highway Materials.—For T.C. F. Turner, B.E.

Peterborough.—Highway Materials.—For T.C. W. H. A. Court, City E. and S.

Wembley.—Road Materials.—For U.D.C. C. R. W. Chapman, E. and S.

MARCH 8.

Hebburn.—Road Materials.—For U.D.C. H. Paterson, S.

Loughborough.—Highway Materials.—For T.C. W. Granger, B.S.

Northampton.—Road Materials.—For C.C. E. A. Black, C.S.

Rainford.—Highway Materials.—For U.D.C. G. Walker, C.

Shifnal.—Road Materials.—For R.D.C. C. H. Abbey, S.

Tamworth.—Granite.—For R.D.C. H. L. Kent, E. and S.

MARCH 9.

Birkenhead.—Pipes, etc.—For Corporation. Water Engineer, 19, Charlesville.

Bristol.—Highway Materials.—For Port Authority. T. A. Peace, engineer, Chief Engineer's Office, Avonmouth Dock.

Mutford and Lothingland.—Road Materials.—For R.D.C. H. Blewitt, S.

New Forest.—Limestone, etc.—For R.D.C. F. Heather, S.

Westhoughton.—Road Materials.—For U.D.C. G. Hayes, S.

MARCH 10.

Aylesbury.—Sand.—For R.D.C. R. C. F. Sizer, S.

Chesterton.—Granite.—For R.D.C. James Dunn, District S.

Darlington.—Road Materials.—For C.B. B.S.

Glyncorrwg.—Highway Materials.—For U.D.C. W. P. Jones, E. and S.

Goole.—Road Materials.—For R.D.C. S.

Hayes.—Roadstone.—For U.D.C. R. F. Davey, E. and S.

Nelson.—Road Materials.—For T.C. B.E. and S.

Perthshire (Western District).—Road Materials. —For C.C. W. L. Gibson, County Road Surveyor, Dunblane.

Rochford.—Highway Materials.—For R.D.C. A. C. Madge, S.

Rochford.—Road Materials, etc.—For R.D.C. A. C. Madge, S.

Runcorn.—Road Materials.—For R.D.C. J. L. Beckett, E. and S.

Rushden.—Road Materials.—For U.D.C. J. W. Lloyd, S.

Tynemouth.—Road Materials.—For C.B. B.S.

MARCH 12.

Boston.—Road Materials.—For T.C. D. G. Cockrill, B.E.

Denbighshire.—Road Materials.—For C.C. E. A. For U.D.C. F. E. Jones, S.

Epsom.—Road Materials.—For R.D.C. T. E Ware, S.

Gellygaer.—Limestone, etc.—For U.D.C. F Read, E. and S.

Guildford.—Highway Materials.—For T.C. J. W. Hipwood, B.S.

Halifax.—Works and Material.—For a period of three years, at Depot, Barracks, from April 1. War Dept., Contracts Comm., R.E., 13, Wenlock-terr., York.

St. Thomas.—Highway Materials.—For R.D.C. J. S. Madge, S., Brooklands, Heavitree, Exeter.

Tyldesley-with-Shakerley.—Highway Materials.—Evans, C.E.

Wrexham.—Builder's Materials.—For T.C. J. England, B.S.

MARCH 13.

Belper.—Road Materials.—For R.D.C. Robt. C. Cordon, E. and S.

Ilfracombe.—Road Materials.—For U.D.C. F. B. Goodman, E. and S.

Leeds.—Builder's Materials.—For Tramways and Transport Dept. W. Chamberlain, General Manager.

St. Helens (Isle of Wight).—Chippings.—For U.D.C. C. Pursey, S.

MARCH 14.

Batley.—Road Materials.—For T.C. B.E.

Chorley.—Road Materials.—For T.C. B.S.

Eastbourne.—Road Materials.—For C.B. L. Roseveare, B.E.

East Grinstead.—Road Materials.—For U.D.C. H. Campbell Golding, E. and S.

Kettering.—Road Materials.—For R.D.C. H. J. Parker, S.

Leek.—Road Materials.—For U.D.C. W. E. Beacham, E. and S.

MARCH 15.

Wardle.—Road Materials.—For U.D.C. T. A. Noble, S.

MARCH 16.

Great Yarmouth.—Highway Materials.—For C.B. S. P. Thompson, B.E.

Heywood.—Road Materials.—For T.C. J. B. Nuttall, B.S.

Staffordshire.—Road Materials.—For C.C. James Moncur, C.S.

MARCH 17.

Coulsdon and Purley.—Highway Materials.—For U.D.C. G. A. Ballard, S.

MARCH 19.

Kidderminster.—Road Materials.—For T.C. J. Hawcroft, B.S.

MARCH 21.

Wortley.—Road Materials.—For R.D.C. F. Thurlby, E. and S.

MARCH 26.

Ilkeston.—Granite, etc.—For Corporation. B.S.

MARCH 28.

Beckenham.—Bricks.—65,000 red paving bricks, for U.D.C. H. Storr Best, S. Dep. £2.

Dover.—Ragstone.—For R.D.C. C. W. Whitewood, S.

ENGINEERING, IRON AND STEEL.

MARCH 5.

Essex.—Reconstruction.—Of Stratford St. Mary bridge, for C.C. William H. Morgan, C.S. Dep. £2 2s

Glamorgan.—Main.—Providing and laying of about 4,900 lin. yds. of 14-in. dia. cast-iron pipes, together with necessary valves, and other appurtenant works, including two river crossings, from Bridgend to Schwyl, for Water Board. Thomas & Morgan & Partners, civil engineers, Pontypridd. Dep. £5 5s

MARCH 8.

Larne.—Water Supply.—Providing and laying 1,850 lin. yds. of 4-in. cast-iron water pipe, together with necessary valves, hydrants, fountains, etc., and construction of sedimentation tank, 2 filters and storage tank, near Carrickfergus, for R.D.C. S. Robinson, E., Victoria-st.

MARCH 12.

Beverley Bridge.—Main.—Diverting existing 36-in., 30-in., 24-in. and 15-in. diameter mains at Beverley Bridge, Kingston Vale, together with laying of a short length of 21-in. diameter main in Portsmouth-rd., for M.W.B. Chief Engineer's Department (Room 201). Dep. £2.

Stoke-on-Trent.—Tanks.—Grit chambers, storm tanks, pumping station and general works at Trent Vale, and for construction of detritus and sedimentation tanks, bacteria beds, humus tanks, formation of roads, and other incidental work, at Strongford, for T.C. W. H. Makepeace, City Sewage Engineer. Dep. £5 5s.

MARCH 13.

Enfield.—Sewers.—Construction of 1,080 lin. yds. of 9-in. cast-iron pipe sewer, 631 lin. yds. of 9-in. stoneware pipe sewer, and 427 lin. yds. of 6-in. cast-iron pipes, together with manholes, hatch boxes, pumping station and other incidental works, being the completion of a drainage scheme at Brimsdown, for U.D.C. H. R. Crabb, S. Dep. £2 2s.

MARCH 24.

Narberth.—Bridge.—Bridge at each of the following 3 places:—(1) Maenclochog Mill, Parish of Maenclochog, (2) Vagwr, on the boundary of the Parishes of Maenclochog and Llandilo, (3) Bethel, Parish of Monachlogddu, for R.D.C. H. Lewis, C.

MARCH 29.

Montrose.—Reconstruction.—Partial demolition and reconstruction in reinforced concrete of Montrose Bridge over South Esk, together with provision of a temporary bridge, for T.C. B.S. Dep. £5 5s.

ROAD, SEWERAGE, AND WATER WORKS.

MARCH 5.

Coseley.—Sewerage.—Construction of about 9,800 yds. of stoneware and cast-iron sewers, varying in size from 6 in. to 15 in. diam., manholes, and other appurtenant works, for U.D.C. Berrington & Son, engineers, Prudential-chambers, Lichfield-st., Wolverhampton. Dep. £5 5s.

Godstone.—Sewers.—Also sewage disposal work at South Godstone, for R.D.C. S. F. Evershed, E. Dep. £3 3s.

Hertford.—Sewers.—Stoneware pipes, etc., in outfall and other foul and surface water sewers, cast-iron water mains, and road work generally in connection with housing estate, for T.C. B.S. Dep. £5 5s.

Midlothian (Calder District).—Laying and Jointing.—About 1,000 yds. of 2-in., 3-in. and 4-in. cast-iron pipes and constructing small concrete break pressure chamber, for C.C. J. & A. Leslie & Reid, C.E., 72a, George-st., Edinburgh. Dep. £1.

Romford.—Drainage.—Redrainage of Romford Institution, for B.G. Harrington & Evans, architects, Western-chambers, South-st. Dep. £3 3s.

Slough.—Sewer.—470 yds. of 15-in. dia. stoneware pipe sewer on Baylis house estate, for U.D.C. A. Bromly, E.

Tobercurry.—Supply.—Construction of water works at Tobercurry, for Sligo County Board of Health and Public Assistance. J. P. Quinn, B.E.

Tunbridge Wells.—Making-up.—Of Hopwood-gardens, for T.C. W. H. Maxwell, Borough and Water Engineer.

MARCH 6.

Bangor.—Reconstruction.—Abbey-st., Upper Main-st., Hamilton-rd., Bingham-st., for T.C. J. Milliken, T.C. Dep. £5.

Belfast.—Sewer.—3,478 lin. ft. of reinforced concrete outlet sewer, divided by diaphragm walls into 3 culverts, each measuring 6 ft. 6 in. square internally, to be constructed in Cofferdam through Tidal Lands in Belfast Lough, for C.B. W. H. Stephens & Son, chartered surveyors, 13, Donegall-sq. North. Dep. £5 5s.

Caerphilly.—Sewer.—170 yds. of 9-in. stoneware pipe sewer, for U.D.C. E. and S. Dep. £1 1s.

Leeds.—Reinstating.—Of trench openings in City, for T.C. E. W. Cockerlyne, Highways Engineer. Dep. £1 1s.

Patcham.—Sewerage, etc.—Certain sewerage and street works in various private streets, for Steyning East R.D.C. G. W. Warr, E.

Sligo.—Piping.—For (1) 1,430 yds. 3-in. c.-i. turned and bored piping, B.S.S. Class C.; (2) 130 yds. 1-in. steel, screwed and socketted piping, tested 200 lbs. hydraulic pressure, for T.C. J. Shea, T.C.

Steyning East.—Sewerage.—Carrying out certain sewerage and street works in Patcham, for R.D.C. G. W. Warr, E. and S.

MARCH 7.

Cardiff.—Sewers.—Road improvement works and surface water sewer in Pantbach-rd., Tyn-y-Parc-rd., and Philog-rd., for R.D.C. W. Farrow, S., 20, Park-pl.

Cardiff.—Sewerage.—533 lin. yds. of 9-in. earthenware and other pipe sewers with manholes and other works in Parish of Van, for R.D.C. W. Farrow, E., 20, Park-pl. Dep. £2.

***Essex.**—Sewer.—Construction of, at Harold Wood. H. A. Brown, Secretary, Aston House, Aldwych, W.C.2.

Fulwood.—Mains.—7,500 yds. of 10-in. cast-iron water mains with valves and appurtenances, and carting, laying and fixing mains and appurtenances in connection with Barnsfold and Haighton reservoirs in the townships of Goosnargh and Whittingham, for U.D.C. G. J. Gibbs, M.I.Mech.E., E., 7, Lune-st., Preston. Dep. £2 2s.

Wembley.—Making-up.—Of Lapstone-gardens, for U.D.C. C. R. W. Chapman, E. and S. Dep. £1 1s.

MARCH 8.

London.—Sewer.—460 ft. of 4-ft. by 2-ft. 8-in. brick sewer (mostly in tunnel) and contingent works beneath Houndsditch (Cutler-st. to Stoney-lane), for City Corporation. City Engineer, Portland House. Basinghall-st., E.C.2. Dep. £2 2s.

Newton Abbot.—Widenings.—Of Addison-rd.; Coach-rd. and junction of Exeter-rd., and Knowles Hill-rd., for U.D.C. Coleridge D. White, S.

MARCH 9.

London.—Blocks.—Creosoted deal paving blocks in various roadways, for Lambeth B.C. O. Cattlin, B.E.

Watford.—Sewer.—1,250 lin. yds. of 24-in. diameter cast-iron sewer in waterlogged ground, together with manholes and contingent works, for T.C. W. W. Newman, B.E. Dep. £2 2s.

MARCH 12.

Beckenham.—Making-up.—Of Shirley-crescent and Adams-rd., Elmers End housing estate, for U.D.C. H. Storr Best, S.

Beckenham.—Making-up.—Of Sheringham-rd., Suffield-rd., Felmingham-rd., Piquet-rd., Arrol-rd., Allen-rd. and Colesburg-rd., for U.D.C. H. Storr Best, S.

Burton Latimer.—Sewer.—In Station-rd., for U.D.C. R. W. C. Kingsley, S. Dep. £1.

Maldens and Coombe.—Making-up.—Nelson-rd. and Grayham-cres., New Malden, and Kingscote-rd, for U.D.C. R. H. Jeffes, E. and S. Dep. £2 2s.

Merioneth.—Road Surface Tarring.—For C.C. W. O. Jones, C.S.

Southampton.—Road.—Reconstructing Radcliffe-rd., Northam, for C.B. B.E. Dep. £1 1s.

MARCH 13.

Enfield.—Sewers.—1,080 lineal yds. of 9-in. c.i. pipe sewer, 631 lineal yds. of 9-in. stoneware pipe sewer, and 427 lineal yds. of 6-in. c.i. pipes, together with manholes, hatch boxes, pumping station and other incidental works, being completion of drainage scheme at Brimsdown, for U.D.C. H. R. Crabb, S. Dep. £2 2s.

London.—Sewer.—Execution of such works, for Corporation. City Engineer, Portland House, Basinghall-st., E.C.2. Dep. £2 2s.

MARCH 17.

North Riding of Yorkshire.—Surface Dressing.—For C.C. C.S.

MARCH 19.

London.—Making-up.—Of Abbott-av., Devas-rd. and Durrington Park-rd., for Wimbledon B.C. B.E. and S.

London.—Street Works.—In Abbott-av., Devas-rd. and Durrington Park-rd., section 1, for Wimbledon B.C. B.E. and S.

Uckfield.—Reconstruction.—Of two sections of London-Eastbourne main road, for U.D.C. Arthur Hollis, S. Dep. £5.

MARCH 21.

Bushey.—Surfacing.—Of Vale-rd., for U.D.C. E. E. Ryder, E. and S.

MARCH 22.

Newton Abbot.—Roads.—Also sewers in connection with fourth instalment of Broadlands housing scheme, for U.D.C. C. D. White, Town Hall, S. Dep. £2 2s.

MARCH 26.

Beckenham.—Paving.—4,500 super yds. of artificial stone paving, for U.D.C. H. Storr Best, S. Dep. £2.

MARCH 30.

Ruislip-Northwood.—Sewerage.—Sewerage and sewage disposal, for U.D.C. Howard Humphreys & Sons, consulting engineers, 28, Victoria-st., Westminster. Dep. £3 3s.

Auction Sales, Tenders, etc.

MARCH 6.

London.—Joseph Hibbard & Sons, at City-rd. Bridge, E.C.1. By order of Messrs. A. Bridgman & Co., Ltd., on removal to larger premises. Plant and stock of box and packing case makers, comprising saw mill plant by well-known makers. Auctioneers, 15, Newington Green, Islington, London, N.16.

London.—Joseph Hibbard & Sons, by order of Messrs. Joseph Wallis & Sons, Ltd., who have sold the premises; upon the premises, 53b, Carysfort-rd., Albion-rd., stock and plant of pianoforte manufacturers. Auctioneers, 15, Newington-green, Islington, N.16.

***Merton.**—Veryard & Yates will sell without reserve (adjoining Wandle Bridge), timber, fittings and building material. Auctioneers, 395, Norwood-rd., S.E.27.

MARCH 7.

Orpington.—Perry and Phillips, Ltd., Ladywood Mansion, Orpington, Kent. Fixtures and fittings, greenhouses, also fabric of the mansion, lead, etc. Auctioneers, 59, High-st., Bridgnorth, Shropshire.

Westcliff-on-Sea.—Henry Butcher, Hall & Co. Stock-in-trade of builders' hardware merchant. Auctioneers, 63 and 64, Chancery-lane, W.C.2.

MARCH 8.

***London.**—Veryard & Yates will sell without reserve "Bradlands," 40, Streatham High-rd., S.W., building material from demolition of residence. Auctioneers, 395, Norwood-rd., S.E.27.

MARCH 13 AND FOLLOWING DAYS.

London.—Joseph Hibbard & Sons. By order of Messrs. William Marshall & Son, Ltd., owing to expiration of lease. Hardwood sale upon the premises, 256 to 260, Old-st., E.C.2. Auctioneers, 15, Newington-green, Islington, N.16.

APRIL 18.

***London.**—Knight, Frank & Rutley, at Hanover-sq. Estate Room, "The Belmont Estate." Freehold building land, cottages and residence; land extends to about 280 acres. Auctioneers, 20, Hanover-sq., W.1.

Public Appointments.

MARCH 2.

***London.**—Clerk of Works.—For supervision of 52 houses, roads and sewers at Acton, for Great Western (London) Garden Village Society, Ltd. T. Alwyn Lloyd, F.R.I.B.A., 6, Cathedral-rd., Cardiff.

MARCH 5.

Durham.—Assistant Architect required by C.C. Dir. of Edu., Shire Hall.

Wolverhampton.—Superintendent of Educational Buildings. T. A. Warren, Director of Education, North-st.

MARCH 6.

Essex.—Architectural Assistant required on the temporary staff in the County Architect's Dept. by the Essex County Council, Jno. Stuart, F.R.I.B.A., County Architect, Springfield Old Court, Chelmsford.

***Singapore.**—Assistant Sanitary Engineer.—For the permanent staff of the sewage dept., required by the Municipal Commissioners of Singapore. Peirce and Williams, M.M.Inst., C.E., 64, Victoria-st., London, S.W.1.

MARCH 7.

Colchester.—Temporary Architectural Assistant required by the B.C. Harold Collins, B. E. and S.

MARCH 13.

***Hull.**—Assistant in Surveyor's Dept.—Required by the Education Committee. Educ. Offices, Guildhall.

MARCH 14.

***Scarborough.**—Temporary Architectural Assistant required by the T.C. B.E., Town Hall.

NO DATE.

***Ceylon.**—Quantity Surveyor.—Required by the Government of Ceylon, for the Architectural Branch of the Public Works Dept. Apply at once, Crown Agents for the Colonies, 4, Millbank, London, S.W., quoting M/390.

***Straits Settlements.**—Assistant required by Architect's Dept. of Public Works Dept. Apply at once, Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1, quoting at head of application M/458.

Bristol House Builders.

There was a good attendance of the recently formed Bristol branch of the National Federation of House Builders at a meeting for the purpose of electing officers. Mr. H. Filer, who presided, said that the collective knowledge and united action provided by the organisation would be of great practical help in dealing with the problems of financing the prospective purchasers of houses, in dealing with local authorities in the carrying out and enforcement of building laws and regulations, and in advising members concerning town planning, income tax, etc. The following officers were elected:—Chairman, Mr. A. C. Fish; vice-chairmen, Messrs. H. Filer and R. Jennings; hon. secretary, Mr. B. Filer; hon. treasurer, Mr. W. J. Voke; committee, Messrs. Kew, Low, Wilmott, Rogers, Elbrow, Lusty, Greenhill, and Lee.

New Methods of Brick Manufacture in Sweden.

Two Swedish engineers announce a new method of brickmaking, called the "dry method," whereby the necessity of placing brick factories in the localities where clay is to be had is eliminated. Instead of manufacturing the bricks directly from the clay, as has previously been done, the clay is first dried by means of heat or vacuum and then pulverised, whereby a half-finished product called "clay meal" is obtained. This clay powder can easily be transported to suitably located factories, where it is again moistened and mixed and subsequently placed in moulds and pressed. The bricks are then placed on specially constructed wagons that are slowly passed through a tunnel oven, where the bricks are baked. The inventors claim the following advantages for their new method: Only one manual process is required in moving the bricks from the moulds to the wagons, the powder is more easily handled and transported and may be ordered only in the quantity needed in each case, thus eliminating the expensive loading, unloading, and storing of the bricks, whereby considerable saving of expense and manual labour is effected. The inventors believe that their new method may revolutionise the old method of brickmaking in Sweden.

The B.I.F., Birmingham.

On Stand 1, Block 212, in Building C, the Midland Joinery Works, Ltd., of Burton-on-Trent, are exhibiting a most effective show of their fine joinery and fittings for all trades. Some very good doors, in styles suitable for all classes of house and building, are included. A comprehensive display of the firm's goods are also on view at the London showrooms, Keith House, 133, Regent-street, W.1.

PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board; Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; County Architect C.A.; Surveyor, S.; Engineer, E.; Borough Architect, B.A.; Architect, A.

Acton.—T.C. passed plans: Eydmann, Street & Bridge, 242, High-st., block plan showing proposed shop, flats and garages, N.W. corner, The Circus, Old Oak Common-lane; J. Atherton & Co., Perryn-rd., 6 detached houses, Shaa-rd; 4 detached houses, East Acton-lane; G. P. Pratt, 174, High-st., factory, Messrs. Allnatt, Ltd., Willesden-lane; W. Atkinson, 15, Balfour-rd., 4 houses, Balfour-rd.; T. Wall & Sons, Ltd., The Friary, transformer house, Friary-rd.; P. M. Ware, 23, Avenue-crescent, additions, United Services Club, 2, Berrymead-gardens; J. Atherton & Co., Perryn-rd., 8 houses, Vyner-rd., six houses, Friars-place-lane; C. H. Ellis, 130, Baker-st., W.1, architect, flats in rear of 1, Heathfield-rd., Avenue-rd.

Aylesbury.—M.H. held inquiry into application by Bucks C.C. for consent to borrow £47,580, for erection of new County Council offices.

Barking Town.—U.D.C. received M.H. sanction to £12,158 for erection of houses on Parsons-row site.—Council referred question as to type of buildings, number of beds to be provided, and general matters in connection with lay-out of proposed infectious diseases hospital to special committee for consideration and report. M.H. approved scheme of Parsons-row for erection of 26 houses on cleared site by direct labour.—Plans passed:—16 houses, Cranleigh-gardens, for C. Gray; rebuilding "Who'd Have Thought It" off-licensed premises, Axe-st., for Mann, Crossman & Paulin, Ltd.; 5 shops with houses in Ripple-rd., for E. Glenny & Son.

Barnsley.—B.E. submitted plans and estimates in connection with erection of houses on Burton Grange site by direct labour.—The Housing Committee recommend following houses be erected and that application be made to M.H. for sanction to loan of £74,316 in respect of the same; 132 houses in blocks of 2, containing 3 bedrooms, at £382 per house; and 66 houses in blocks of 2, containing 2 bedrooms, at £365 per house.

Bedfordshire.—C.C. have scheme for widening Luton-Bedford road for 10½ miles, enlarging 4 bridges, and cutting out 2 dangerous places.

Bexhill.—T.C. passed plans for 5 houses and garages, Barnhorn-rd., Matthews & Co.

Bexley.—Council passed plans:—6 houses, Deepdene-rd., for Barnes & Bridge, submitted by A. Hargreaves; 18 houses, Cleveland-rd., for W. Norman, submitted by A. Hargreaves; 4 houses, Mount-rd., for A. G. Elms, submitted by A. Hargreaves; 4 bungalows, Bowford-av., for A. H. Jennings; 14 bungalows, Jenton-av., for D. C. Bowyer, submitted by A. H. Jennings; amended plan 22 houses, Central-av., for J. Stevens & Sons, submitted by A. Hargreaves.

Birmingham.—Corporation intend to sanction erection of certain special buildings, namely:—(a) garage, with loft over, in Stoney-lane, Sparkhill, adjoining No. 106, Doris-rd.; (b) store shed, at rear of 93, Primrose-lane, Hall Green; (c) 2 dwelling houses and shops, at junction of Scribers-lane and Baldwins-lane, Hall Green; and (d) shop, adjoining 268, Brook-lane, Billesley; also dance hall and lock-up shops between 195 and 201, Station-rd., Stechford.

Blackpool.—Estate Department, Brunner Mond & Co., Winnington, Northwich, have prepared plans for club in Bourne-rd., for the Imperial Chemical Industries, Ltd. Lumb & Walton, architects, 19, Clifton-st., Blackpool, have prepared plans for 8 shops and bank premises in Cleveleys-av. and Victoria-rd., Cleveleys, for Chadwick Bros.

Bradford.—Negotiations for acquiring whole of properties which are subject of Bradford White Abbey clearance scheme are now practically completed, and lay-out plan of proposed reconstruction work in this slum area has been approved by M.H. —Empsall, Clarkson & Clarke, Permanent-chambers, Pierce Hall-yard, are preparing plans for school at Dudley-hill, Bradford, for Reverend Father M. Daley.—T.C. received from M.H. formal sanction to borrow £4,585 for erection of four combined shops and houses on Odsal housing site.

Brandon.—Durham County E.C. are to erect an elementary school at Brandon Colliery, by direct labour, at £22,499. F. Wiley, F.R.I.B.A., of 34, Old Elvet, Durham.

Brighton.—T.C. are to make application to M.H. for loan of £18,500 for improvements to Preston-pk.—T.C. submitted extract from proceedings of Works Committee recommending alterations at West-st. shelter hall lavatories be carried out by direct labour at £4,920.—T.C. passed plans:—eight houses, Dudley-rd., A. T. Dockerill.—E.C. recommend Council be asked to approve proposals for erection on present Moulsecoomb site of senior boys' and a senior girls' department, each to accommodate about 300 scholars, and also another department for about 350 scholars, at a total cost of approximately £43,200.—B.S. submitted plans for 4 cottages to be erected on land proposed to be acquired at Rottingdean, and Council resolved that cottages be erected.—M.H., dated February 9, forward sanction to borrowing £712 for alterations to North Road baths.—Electricity Commissioners sanctioned borrowing of £1,100 for fencing work at Southwick power station.—Corporation are to apply to M.H. for sanction to borrowing £9,000 to defray the cost of purchase of Dyke estate.—Clayton and Black, on behalf of Messrs. Hooper Struve and Co., Ltd., submitted plans for approval for erection of van shelter adjoining Royal Spa, Queen's Park, which have been approved.—Application is to be made to M.H. for sanction to £4,920 for increasing and improving accommodation in men's and women's lavatories at West-st. shelter hall.—B.S. estimates cleaning down and painting, etc, at Town Hall, at £360.—Plans passed: store, North-st., rear of Countess of Huntingdon's Church, the Committee of Countess of Huntingdon's Church; memorial hall, 35, Ship-st., Holy Trinity Church Council; alterations, 33-34, East-st., Tamplin and Sons' Brewery (Brighton), Ltd.; rebuilding, old Steine and St. James's-st., N.W. corner, J. Lyons and Co., Ltd.; reconstruction of building at rear of 51, Elm-grove, G. Simmons.

Burnt Ash.—The Wesleyan Authorities have approved the building of a church to seat 366 persons. The plans have been prepared by Mr. H. Guy Holt, A.R.I.B.A., 46, Victoria-st., S.W.1.

Caistor.—R.D.C. is to erect 16 houses

Cambridge.—T.C. passed plans for 12 houses, Arbury-rd., J. R. Bennett & Sons, builders.

Cavan.—C.C. approved plans and specifications submitted by P. J. Brady, engineer, for reconstruction of Cavan, Bailieboro', and Ballyjamesduff Courthouses.

Chester.—T.C. resolved that plan be approved and tenders be invited for erection of roof over Mug Market.—M.H. approved proposal to erect 3 houses and 12 shops on site at junction of Mill-st. and Handbridge.—Plans passed:—Lay-out of building land at Glan Aber Park, Hough Green, belonging to E. Kennerley & Son; 13 houses in Glan Aber Park for E. Kennerley & Son; 8 houses and 2 garages, Walpole-st., for E. Kennerley & Son; hotel, junction of Christleton-rd. and Heath-lane, Greenall, Whitley & Co., Ltd.; lay-out plan of land adjoining Newton-lane, Chester, for W. A. Davies; 3 bungalows in Saughall-rd., for W. A. Camaish; 3 bungalows, Kingsley-rd., Boughton Heath, for J. H. Emerson; 3 pairs of semi-detached houses at Whitchurch-rd., for H. Burley.

Chorley.—J. W. Lee, Ltd., Yarrow-road Saw Mills, have acquired a site on Gillibrand estate for 30 houses. Plans prepared by C. Humphreys, architect, St. Thomas's-rd.

Corofin.—Clare C.C. instructed surveyor to prepare an estimate for conversion of workhouse boardroom into courthouse.

Croydon.—C.B. passed plans:—C. H. Marchant, 22 garages and 2 stores, 55, Bensham-grove; J. T. Keen & Son, amended block plan with 12 houses, Carolina-rd.; Borough Electrical Engineer, sub-station, Canham-rd.; Borough Electrical Engineer, sub-station, London-rd., S.W.16; D. Morris & Sons, Ltd., 7 shops with living accommodation over, London-rd., corner Pollards Hill Sth.; G. H. Dales, 2 houses and garages, Mapledale-av.; Borough Electrical Engineer, sub-station, Penrith-rd.; M. A. D. Arnold, 9 garages, Norbury-rd., rear of The Grange P.H.; Hart & Co., 17 garages, Bert-rd.; R. V. Boughton, office addition, 1a, Warwick-rd.; V. W. Delves-Broughton, factory, Brading-rd.; L. W. Harris, 2 shops in lieu of 2 houses, Thornton-rd.

Dipton.—Members of Flint Hill branch of British Legion propose to erect a hall.

Dorking.—New secondary school for 400 pupils is being planned.

Dover.—Surveyor of T.C. recommend for approval plans received from Whinney, Son & Austin Hall, architects, 8, Old Jewry, E.C., in regard to alterations to 26, Biggin-st., for the Midland Bank.

Dublin.—Following plans for new buildings and works of reconstruction in Dublin been approved by H. T. O'Rourke, City Architect:—Marlborough-place, tobacco factory, Murray, Ltd.; Castle-av., 3 bungalows, J. J. Fitzpatrick; Shandon-drive, 9 houses, G. Byrne.

Edmonton.—Engineer of U.D.C. submitted sketch for proposed additional cubicles for accommodating 24 males and 24 females, with club house, refreshment room and grand stand, at £1,000, at Open Air Baths, and Council has approved.—Plans passed:—E. Yates, 4 houses, The Meadway, and 2 bungalows, Manor Way, Bush Hill-park; and C. Ashby, store building at rear of 245, Fore-st.

Enfield.—Extension to showrooms and stores is contemplated by Bearson Bros., drapers. Plans by W. H. Hamilton, Son & Campion, 66, Church-st.

Farnham.—R.D.C. resolved that one acre of land be purchased for erection of eight houses at Rowner, subject to a report from District Valuers, and sanction of M.H.

Grantham.—R.D.C. are considering scheme for erection of 8 houses at Barrowby.

Guildford.—It is proposed to erect water towers on Hog's Back, near Guildford.

Hampshire.—E.C. recommend following:—Hartley Wintney, new school, £6,400; Nether Wallop, ditto, £4,500; Clanfield, ditto, £6,000; Cove, Tower Hill, new junior mixed school, £6,600; Eastleigh, new senior girls' school, £14,600; Totton, new junior mixed school, £6,153; Wherwell, new mixed school, £4,250; Itchen Abbas, additional classroom, £1,300; Drayton, additional classrooms, £2,050.

Harrogate.—Corporation propose to demolish certain shop property in Station-sq., and to erect new premises at £21,500. It is also proposed to carry out alterations at Central Library, at £4,250. A site has been acquired for Fire Brigade station, at £6,000.

Hastings.—An offer by the Mayoress, Mrs. Thorpe, to build a chapel in grounds of Buchanan Hospital, St. Leonards, been accepted.

Hendon.—Hendon Council are asking M.H. to sanction loans of nearly £40,000 for road works at Golders Green and Hendon.

Heston and Isleworth.—U.D.C. made application to M.H. for sanction to a loan of £1,405 to cover cost of tar-paving at Heston and Alexandra schools, and installation of a heating system at Worple-rd. school.—Application also been made to M.H. for sanction to borrowing of £3,672 for purchase of land at Busch Corner, as site for erection of dwellings for persons of the working classes.—Plans passed:—J. T. Rose, Ltd., 58 houses, Pearman estate, Lampton; Fox & Champion, 4 houses, Osterley-av.; J. T. Rose & Co., Ltd., 8 shops, Great West-rd.; P. Chase Gardener & Co., 3 houses, Springwell-rd.; Langer & Co., 94 houses, Beaversfield estate, Bath-rd.; P. Chase Gardener & Co., 32 houses, Heath-rd.; A. Penty, addition to Isleworth Club and Institute, St. John's-rd.; P. Chase Gardener & Co., 4 shops, Vicarage Farm-rd.

Heywood.—A local syndicate has acquired a site in Bridge-st., for kinema and ballroom. Plans prepared by J. Collins & Son, 15, Clegg-st., Oldham.

High Wycombe.—Plans passed: 10 houses, for G. H. Gibson & Sons; Sunday school, Gordon-rd., for Wesleyan Trustees; additions to chair factory, Dashwood-av., for Hands & Son.

Hitchin.—U.D.C. passed plans for 4 houses, in Old Hale-way. A. G. Monk

Holmfirth.—Council accepted tenders for 24 houses on Woodlands estate.

Hyde.—T.C. informed S. to consider report on suggested sites and estimated cost for provision of tram and 'bus shelters in vicinity of Town Hall. Plans approved:—four houses, Stockport-rd., for Crompton Bros.; rebuilding Bay Horse Hotel, Newton, for Bell and Co.

Leamington Spa.—M.H. sanctioned borrowing of £800 for new handicraft centre.

Lexden and Winstree R.D.C.—Agreed, subject to approval of M.H., to seal contracts for erection of four houses at West Bergholt and two each at Great Horkesley and Layer Marney.

London.—London C.C. recommend £6,090 approved in respect of the lay-out of Jackwood.

London (Deptford).—B.C. recommend proposals with regard to erection of a motor repair shop and petrol storage tank at Knott-st. depot, at £1,000.

London (Greenwich).—L.C.C. recommend £1,650 in respect of acquisition of site on Greenwich housing estate at Charlton-park (Greenwich).

London (Hackney).—L.C.C. approved application by A. E. Bradshaw, of buildings of a temporary character at Gainsborough Works, Gainsborough-rd., Hackney.

London (Lambeth).—L.C.C. recommend £800, submitted in respect of preparation of working drawings, specifications, bills of quantities and other preliminary expenses incidental to erection of dwellings on the China-walk area, Lambeth.

London (Lewisham).—B.C. passed the recommendation of Finance Committee for £527 upon reconstruction of certain sheds at Molesworth-st. depot.—Plans passed:—J. G. Stephenson, for L.C.C., 62 houses, Downham estate; Jas. Dibben & Co., 6 garages and 6 houses, Calmont-rd.; W. J. Scudamore, Ltd., 10 houses, Holme Lacey-rd.; J. W. Rose & Sons, 7 garages, Eastdown-park; J. W. Heath & Sons, warehouse, Abbotswell-st.

London (Lewisham).—L.C.C. recommend £9,785 in respect of remodelling the Baring-rd. L.C.C. school.

London (Paddington).—B.C. recommend £560 for erecting and equipping an engineer's workshop at the Central Baths, Queen's-rd., W.—Council also recommend £6,000 for compulsory acquisition of site comprising 327 and 329, Harrow-rd., and 22 and 24, Woodfield-rd., together with 26 and 28, Woodfield-rd., for housing purposes.—B.C. recommend that estimate of £13,000 submitted by Finance Committee be approved for land, comprising fields Nos. 157, 157a, 146 and 144, being part of Glebe Farm, Kenton, Middlesex, consisting of 36 acres, 2 roods, 20 poles, be purchased from Vicar of Harrow for purpose of a burial ground.

London (Stepney).—B.C. approved plans for Henry Smith, erection of lock-up shops on site at rear of 73 and 75, Redman's-rd.

London (Woolwich).—B.C. passed plans:—W. Harris, Ltd., Fernhill-st., North Woolwich (on behalf of E. H. Kemp), Spray-st., Plumstead, 3 lock-up shops; Robertson & Cameron, 13-16, Addington-sq., Camberwell, S.E.5 (on behalf of Price & Co.), 32 and 34, Hare-st., Woolwich, alterations and additions; G. W. Keats, 44, Powis-st., Woolwich (on behalf of Council Electricity Dept.), Shawbrooke-rd., Eltham, electricity sub-station; S. Browne, 97a, Eltham High-st. (on behalf of the Legal and General Assurance Co., Ltd.), Footscray-rd., Eltham, sports pavilion; W. R. Hindmarsh, 6, Park-pl., Eltham (on behalf of Woolwich Tenants' Association), Eltham Hill, Eltham, social club.

Lurgan.—U.D.C. decided to build some 50 or 60 houses. Mr. Robert Lynn, architect, in conjunction with town surveyor, W. R. Rutherford, to submit plans.

Luton.—C.B. received M.H. to borrowing £370, for furnishing and altering 52, Napier-rd., for purposes of a maternity home.

Malton.—Earl Fitzwilliam is to rebuild the Assembly Rooms as dance-hall, museum and library. Col. W. H. Diggle is estate agent.

Manchester.—The Reverend Father T. G. Griffin,

*See also our List of Contracts, Competitions, etc.

St. Roberts' R.C. Church, North Levenshulme, proposes school in Hamilton-rd. Plans prepared by H. A. Yearsley, 25, Market-st., Manchester.

Margate.—T.C. passed plans: 8 houses, Arlington-gardens, Wood & Co., Ltd.; 14 garages to houses, Old Crossing-rd., H. J. Fuller; extension to dining-room, Lingwood Hotel, Royal Esplanade, A. B. Vanner; internal structural alterations, Elephant Hotel, W. B. Wilkins, school, Palm Bay Esplanade, Foster & Barber.

Northampton.—T.C. is to invite tenders for the £2,600 extensions to Corn Exchange.

North Tipperary.—Board of Health adopted report of engineer, Mr. Denis Heaney, B.E., containing an alternative to the proposed Roscrea waterworks scheme at £9,300.

Peterborough.—Guildhall is to be restored at a cost of £2,000.

Plymouth.—A £5,500 municipal crematorium at Plymouth has been approved.

Potters Bar.—The British Broadcasting Corporation have purchased a site for a new broadcasting station, the buildings for which will be designed by the Corporation's own engineers.

Rainworth.—An ambitious project for building of church, £15,000, been launched at Rainworth, a colliery village at the east end of borough of Mansfield.

Ramsgate.—T.C. has approved plans for new bandstand and pavilion at West Cliff.

Sheffield.—Yorkshire Baptists' Association acquired site on Manor housing estate upon which to erect a new chapel, and propose to erect another new chapel on the Longley housing estate.

Shrewsbury.—Estates Committee accepted offer from Shropshire Horticultural Society to build a new greenhouse in Quarry, at £500.

Southend-on-Sea.—C.B. passed plans: enlargement of factory, 212 to 216, Westborough-rd., Held & Sons; special instruction centre, West Leigh School, Ronald Hill-grove, E.C.; printing works and alterations, 49, London-rd., W. H. Houldershaw; 3 houses, Seaforth-grove, E. Wisker; 6 houses and 6 garages, Hillway, R. T. Howard; 2 lock-up garages, Eastwood Boulevard, E. S. Smith; 3 houses and 3 garages, The Drive, Westcliff, S. & A. Riley; 4 houses and garage, Nelson-rd., Leigh, Wiltshire & Bass; 3 houses, Rockleigh-av., E. Taylor.

Stratford-on-Avon.—The under-mentioned plans of new buildings were approved: Pair of houses at Hatton Rock Farm, for Clyde Higgs; house at Beddington farm, Luddington, for Miss F. M Bailey.

Swansea.—The B.A., has submitted plans to C.B. for a market. C.B. has passed plans for additions to Norwegian Church, Prince of Wales Dock-rd., for the trustees; additions to the General Hospital, for the Committee; institute at Landore, for British Mannesmann Tube Co., Ltd.; institute, Mumbles-rd., Blackpill, for Mr. Hurn; and drill hall, Queen's-rd., Mumbles, for A. Tucker; a £33,000 pumping station scheme is in force for Llansamlet; £864 improvements are in hand for Cam Council school.

Thornton.—At Thornton Grammar School work will shortly be begun on erection of new school buildings on part of the estate of the late Sir Francis Powell, Leventhorpe.

Torquay.—Chamber of Commerce passed resolution in support of T.C.'s proposal for new band enclosure on sea front at £25,000.

Walsall.—M.H. held inquiry into application by T.C. for a provisional order to empower Corporation to put in force Land Clauses Acts with respect to acquisition of properties required amongst other purposes for widening and improvement of High-st., Digbeth, The Bridge, and Bridge-st., and for the construction of new street between Leicester-sq. and High-st.

Walthamstow.—U.D.C. passed plans: amended plan of Sunday school, Orford-rd., A. G. Barton & Son; 3 houses, Wickham-rd., F. J. Moss; alterations, "Plough Inn," Wood-st., Huggins and Co.

Warwick.—R.D.C. decided to ask M.H. to sanction £623 12s. 6d. in respect of structural alterations, etc., to Campion-terr. property.

Wavendon.—Newport Pagnell R.D.C. recommend that plans for 8 houses at Wavendon be approved and that application be made to M.H. for sanction to borrowing £3,705.

Welling.—New company be formed for erection of new cinema. Mr. G. H. Mason, 45, Lovel-av., Welling, is in connection with scheme.

Whitby.—U.D.C. passed plans for addition of tea room, with lavatory and other conveniences, at Flask Inn, for J. Tranmer, from designs by F. Baker, architect, Scarborough.

Winchester.—R.D.C. passed plans: Alterations to buildings, Soarsholt Farm Institute, Hants C.C.; 13 houses, Fair Oak, S. G. Kimber.

Wisbech.—Mr. F. Burdett-Ward is architect for the proposed new theatre for H. Bancroft, in High-st.

Withernsea.—M.H. held inquiry into application of U.D.C. for sanction to borrow £1,550 for provision of public sanitary conveniences on Central Promenade and at Northgate.

Wolverhamoton.—T.C. are considering scheme for demolition of houses, etc.

Worksop.—Public inquiry into application of R.D.C. to borrow £6,500 for purpose of purchasing, altering and furnishing Highfield House, Carlton-rd., to be used as offices for staff and a council chamber, has been held.

Worthing.—T.C. passed plans:—8 houses, Heeneway, Manor-rd. and Downview-rd., for C. Penpiatt; 10 houses, Westcourt-rd., for Worthing Estates Building Co., Ltd., per F. G. Abell.

Wrexham.—Governors of new Denbighshire Technical Institute have adopted scheme of building operations at old Infirmary premises to cost between £17,000 and £18,000. W. Wiles is the County Architect.

York.—English Martyrs are desirous of building a new church, at £15,000.

THE LONDON MASTER ASPHALTERS

THE eighth annual dinner of this Association was held at Frascati's on Monday evening last. Amongst the guests were many well-known architects and engineers, including Mr. S. Warwick, F.R.I.B.A., Mr. Alfred Cox, F.R.I.B.A., Mr. Harold Bailey, F.R.I.B.A., and Col. Dixon Spain, F.R.I.B.A.

After the customary loyal toasts had been honoured, Mr. A. E. Collins, M.I.C.E. (past president Institution of Municipal and County Engineers) proposed the toast of the evening, "The London Master Asphalters' Association." In the course of an interesting speech on the relationship between engineers, architects, and traders, he said it was not satisfactory to sign a contract in which an engineer or architect was the sole arbitrator. He also referred to an important article appearing in a recent issue of the *Times* on the relationship between employer and employed.

In responding to the toast, the Chairman, Mr. R. A. Daniells, in the course of his remarks said service was the basis of life in England, as in no other country in the world, and they were at the service of the professions and public wherever their services and advice were needed; also they were at the service of their Association and to their employees. He believed in equable service and equable treatment to all, which he was sure was bound to bring about happy relationships. He referred sympathetically to the death of Mr. George Wall, an old friend and a man of direct action and speech. He also extended a hearty welcome to the Northern Asphalt Association. At this juncture he had the pleasant duty of handing to Mr. Clements a little packet.

Mr. Clements suitably acknowledged the gift, remarking he had, during his term of office, done his best to make it a success.

Mr. A. J. Bevan proposed the toast of "The Chairman," and spoke of the high esteem in which they held him. The toast was accompanied with musical honours. The Chairman suitably replied.

Mr. S. D. Clements proposed the toast of "The Immediate Past Chairman," and in the course of his remarks said at a past meeting of employers they had been able to give their employees an increase of wages without an increase of prices to their clients. Mr. George Mitchell, for the visitors, said it was an honour to themselves to bring together architects and engineers. Business was not really a battle, but a brotherhood, and the time would come when men would "get together" and do the decent thing to each other.

Sir Harry Handover, J.P., responded for "The Visitors."

LONDON COUNTY COUNCIL SCHOOL OF BUILDING

Proposed Sage Memorial.

THE Brixton School of Building, since its opening in 1904, has been associated in the minds of all its teachers and instructors, and by the thousands of students who have passed through its classes and workshops, with the personality of the late Mr. Arthur R. Sage. As assistant to Mr. Richards, the first Principal, and afterwards as Principal himself, his technical knowledge, practical wisdom and personal sympathy made him not only a valuable inspiration to staff and students alike, but also a real friend.

The Day Technical School, established 20 years ago, added to his duties and influence. His care for the physical as well as the mental improvement of the boys was largely responsible for the acquisition on their behalf of the fine sports ground at Raynes Park. The Advisory Committee and the education authorities of the Council always valued Mr. Sage's enthusiasm and common sense in counsel, on matters of organisation and progress.

A Sage Memorial Committee has been formed to fulfil the duty of perpetuating his memory at the school, and, if possible, to further the work of his life. It is proposed to place a small tablet upon the base of the school memorial to Principal Richards, with whom Mr. Sage was most intimately and affectionately associated, and also to establish a trust fund, the income from which would provide a prize and a "Sage Medallion."

The Committee feel that all who have profited by Mr. Sage's interest in their education and have valued his friendship will wish to contribute. It has been thought desirable not to limit contributions, but rather to leave it to the donor to decide what he would be willing to give, and sums large or small will be gladly accepted. Contribution lists will be published stating only the names of the donors, and no mention of the amounts contributed will be made. If any donor desires to earmark his subscription to one only of the above-named suggestions, his wishes will be carried out. Donations should be sent to The Secretary, Sage Memorial Committee, L.C.C. School of Building, Ferndale road, Clapham, S.W.4

BUILDERS' FOREMEN'S PROVIDENT INSTITUTION

THE annual dinner of the Provident Institution of Builders' Foremen and Clerks of Works was held on February 22 at the Edward VII Rooms, Hotel Victoria, W.C.2 Mr. R. L. Roberts, M.A., F.I.O.B., President of the London Master Builders' Association, occupied the chair, and among those present were Mr. A. T. Bush, the President; Messrs. A. B. Falkner, F. L. Dove, H. Parslow, W. Mitchell, A. H. Adamson, A. B. H. Colls, and Mr. Ernest Searchfield, Honorary Secretary.

The loyal toasts having been honoured, Mr. R. L. Roberts, from the chair, in proposing the toast of "The Provident Institution," said that the Institution had now reached the 86th year of its existence, and he found from the statement of accounts that no less than £30,684 2s. had been paid out in pensions—£1,070 11s. last year. The employers in the building trade were the main supporters of the fund, and those employers looked upon the matter as a debt of honour. The Institution was a voluntary and self-supporting one, and it could be shown that it did well and that its running expenses were very little. He appealed for yet stronger and more generous support.

Mr. Bush, in reply, said that he, on behalf of the Institution and its Council, would express how indebted it was to the builders and builders' merchants for their efforts to help the aged members and their dependants.

Mr. Herbert W. Wills, F.R.I.B.A., proposed the toast of "The Master Builders and Contractors," to which Mr. A. B. Falkner, F.I.O.B., replied, saying that it was gratifying to find that architects were more generally realising that builders were real co-partners in carrying out their designs. The greatest need in the world to-day was the spirit of brotherhood, not the kind that was so commonly apparent in smooth times, but in adversity. And so anyone who fell by the wayside in carrying on their profession had a right to the Institution's help, and that help was given not as a duty but as a privilege. He hoped that many more builders would support the Institution.

The "Visitors" were toasted by Mr. W. Mitchell and replied to by Mr. A. H. Adamson and Mr. Davidson; while Mr. R. L. Roberts responded to the toast of "The President," proposed by Mr. F. L. Dove.

The toast of "Honorary Secretary" was proposed by the President, who paid a high tribute to the unsparing work that Mr. Ernest Searchfield had put in. Mr. Searchfield responded.

During the evening a programme of music was rendered. The total list of subscriptions and donations to the fund was announced during the evening as about £300.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 5 6
Second Hard Stocks	3 19 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 12 3	Best Blue Pressed Staffs	9 5 0
Do., grooved for Plaster	2 14 3	Do. Bullnose	9 15 0
Do., Bullnose	3 6 3	Blue Wire Cuts	7 5 0
Best Stourbridge Fire Brick	8 11 0	3 in.	10 3 0

GLAZED BRICKS—					
Best White Ivory, and Salt Glazed Stretchers	21	0	0	D'ble Str'tch'rs	29 10 0
				D'ble Headers	26 10 0
				One Side and two Ends	30 10 0
Headers	20	10	0	Two Sides and one End	31 10 0
Quoins, Bull-nose and 4½ in. Flats	27	10	0	Splays and Squints	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.
Delivered London.

	s. d.		s. d.
2 in. per yd. super.	1 11	3 in. per yd. super.	2 9
2½ in. „ „	2 4	4 in. „ „	3 6

	s. d.	
Thames Ballast	10 6	per yd.
Pit Sand	13 9	„ „
Thames Sand	14 6	„ „
Best Washed Sand	14 6	„ „
½ in. Shingle for Ferro-Concrete	12 9	„ „
¼ in.	14 0	„ „
¼ in. Broken Brick	11 6	„ „
Pan Breeze	8 0	„ „

delivered 2 miles radius Paddington

Per ton delivered in London area in full van loads.
Best Portland Cement. British.
Standard Specification. Test £2 13 0 to £2 15 0
40s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 10 0
Super Cement (Waterproof)	4 3 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Strapite, Coarse	3 9 0
„ Finish	3 17 0
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	1 17 6
Hair per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.
Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dp.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube — s. d. 2 10

BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station, per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. per ft. cube 3 1½
Selected approximate size one way, 1d. per cubic foot extra; selected approximately three sizes or for special work, 3d. per cubic foot extra.

PORTLAND STONE.—
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S.Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube 4 4½
Do. do. delivered on road wagons at above stations, per ft. cube 4 5½
White basebed, 3d. per ft. cube extra.
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

HOPTON-WOOD STONE—
Delivered at any Goods Station, London. s. d.

Random blocks, from 10 ft. and over P. ft. cb.	17	0
Sawn two sides „	27	0
Sawn three or four sides „	32	0

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.

6 in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5 6
6 in. rubbed two sides, ditto „	6 0
3 in. sawn two sides slabs (random sizes) „	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 3½

HARD YORK—
Delivered at any Goods Station, London.

Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto „	6 1½
4 in. sawn two sides slabs (random sizes) „	2 1½
3 in. ditto ditto „	2 10
2 in. self-faced random flags .. Per yd. super.	8 8

CAST STONE.

Delivered in London area in full-van loads, per ft. cube:—Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£30 0	3 × 6	£21 0
4 × 9	26 0	3 × 11	25 0
4 × 8	25 0	2 × 11	26 0
4 × 7	23 0	3 × 9	24 0
3 × 8	22 0	2½ × 9	24 0
3 × 7	22 0	3 × 4½	21 0
2½ × 7	21 0	3 × 4	21 0

PLANED BOARDS.

1 × 11	£30 0	1 × 9	£28 0

PLAIN EDGE FLOORING.

Inches	per sq.	Inches.	per sq.
¾	18/-	1¼	30/-
⅞	21/-	1½	34/-
1	24/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.	Inches.	per sq.
1	24/-	¾	16/6
1¼	30/-	⅞	19/-
1½	34/-	1	24/-

Ins. BATTENS.	s. d.	SAWN LATHS.	s. d.
¾ × 2 .... per 100 ft.	2 6	Per bundle	2 6

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 16 0	to 0 18 0
Dry American and/or Japanese Figured Oak, ft. cube	0 14 0	to 0 15 0
Dry American and/or Japanese Plain Oak, ft. cube	0 10 0	to 0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 15 0	to 0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 16 0	to 1 1 0
Dry Cuba Mahogany, ft. cube	1 1 0	to 1 10 0
Dry Teak, ft. cube	0 13 0	to 0 15 0
Dry American Whitewood, ft. cube	0 10 0	to 0 14 0
Best Scotch glue, per cwt.	4 10 0	to —
Liquid Glue, per cwt.	4 7 0	to 5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000.

	£ s. d.		£ s. d.
24 by 12	32 18 4	18 by 10	18 12 11
22 by 12	29 17 11	18 by 9	16 9 2
22 by 11	27 14 2	16 by 10	15 12 6
20 by 12	26 5 0	16 by 8	12 3 9
20 by 10	22 10 0		

TILES.

Delivered at London rate stations in full truckloads of not less than 6 tons. Per 1,000 f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district	5 7 6
ditto hand-made ditto	5 17 6
Ornamental ditto	6 2 6
Hip and valley tiles (per dozen) Hand-made	0 9 6
Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—

	£ s. d.
R.S. Joists, cut and fitted	12 10 0
Plain Compound Girders	14 10 0
„ „ Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.—To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	12 0 0	⅜ in. to ½ in.	10 15 0
⅜ in.	11 0 0	⅝ in. to 2¾ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	TUBES. Wrought Mild Steel.	Genuine Staffs. Iron.	FITTINGS. ½ in. and under.	Over ½ in.	FLANGES. ½ in. and under.	Over ½ in.
	%	%	%	%	%	%
Gas	67½	50	42½	45	52½	55
Water	63½	46½	37½	40	47½	50
Steam	60	42½	32½	35	42½	45
Galv. gas	55	37½	32½	35	42½	45
Galv. water	50	32½	27½	30	37½	40
Galv. steam	45	27½	22½	25	32½	35

C.I.—HALF-ROUND GUTTERS—London Prices ex Works

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/3½	11½d.	3½d.
3½ in.	1/4½	1/1½	3½d.
4 in.	1/6	1/3	3½d.
4½ in.	1/7½	1/4½	4½d.
5 in.	1/10½	1/6½	5½d.

O.G. GUTTERS.

3 in.	1/8	1/4½	3½d.
3½ in.	1/8	1/4½	3½d.
4 in.	1/9½	1/4½	3½d.
4½ in.	1/11½	1/7½	4½d.
5 in.	2/4½	1/10½	5½d.

RAIN-WATER PIPES, &c.

per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/10½	1/3	1/9½
2½ in. „	2/0½	1/4½	2/1½
3 in. „	2/6	1/9	2/7½
3½ in. „	2/11½	2/0½	3/0½
4 in. „	3/5	2/6½	3/8½

L.C.C. COATED SOIL PIPES—London Prices ex Works

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. plain	3 3	2 4½	2 10
2½ in. „	3 9	2 7½	3 7
3 in. „	4 6	2 10	4 2½
3½ in. „	4 11½	3 7	4 11½
4 in. „	5 5½	4 0½	5 9

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe, stock angles.	Bends, stock Branches.
	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 4	5 1
4 in. „ „	6 2	5 8
5 in. „ „	7 2	10 10
6 in. „ „	8 6	13 2

	s. d.
Gasken for jointing, 38/6 per cwt.	8 0½
	10 0
	17 1
	21 9

Per ton in London.

IRON—	£ s. d.		£ s. d.
Common bars	13 0 0	to	14 10 0
Staffordshire Crown Bars—Good merchant quality	14 5 0	to	15 15 0
Staffordshire Marked Bars	16 5 0	„	17 5 0
Mild Steel Bars	10 0 0	..	11 0 0
Steel Bars. Ferro-Concrete quality, basis price	10 0 0	..	11 0 0
Hoop iron, basis price	12 0 0	..	13 0 0
„ Galvanised	27 0 0	..	28 0 0
Soft Steel Sheets, Black—Ordinary sizes to 20 g.	13 5 0	..	14 5 0
„ „ „ 24 g.	14 5 0	..	15 5 0
„ „ „ 26 g.	16 5 0	..	17 5 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 10 0	..	16 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 10 0	..	17 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18 10 0	..	20 10 0

No. 1 quality £4 per ton extra.

Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18 0 0	..	19 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 10 0	..	19 10 0
Ordinary sizes 6 ft. to 9 ft. to 26 g.	21 10 0	..	22 10 0
Sheets Galvanised Flat, Best quality—Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	£2 0 0	..	23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 0 0	..	26 0 0
Best Soft Steel Sheets, 26 g.	25 10 0	..	26 10 0
Cut Nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	19 0 0		

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	28 10 0
Pipe in coils	29 0 0
Soil pipe	32 0 0
Compo Pipe	33 0 0

NOTE.—Countrydelivery, 20s. per ton extra; lots under 3 cwt. 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes. 5s. cwt. extra.
Oil lead, ex London area, at Mills per ton 18 15 0

COPPER.

	s. d.
Seamless Copper tubes (basis) per lb.	1 1
Strong sheet „	1 0
Thin „	1 1
Copper nails „	2 3
Copper wire „	2 4

PLUMBERS' BRASS WORK.
Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz

CAPS AND SCREWS.

1¼ in.	1½ in	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1¼ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- „

TIN.—English Ingots, 3/1 per lb. SOLDER.—Plumber's 1/3, Tinmen's 1/6, Blowpipe 1/7 per lb.

PAINTS, &c.

			s. d.
Raw Linseed Oil,	in pipes per gallon		0 2 11
„ „ „	in barrels „		0 3 1
„ „ „	in drums „		0 3 3
Boiled „ „	in barrels „		0 3 3
„ „ „	in drums „		0 3 6
Turpentine	in barrels „		0 3 10
„	in drums (10 galls.) „		0 4 0
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)			47 5 0

(*Continued on p.* 396.)

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

PAINTS, &c. (*contd.*)

		£	s.	d.
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J," Brand, and other best brands (in 14 lb. tins) not less than 5 cwt. lots	per ton delivered	66	15	0
Red Lead, Dry (packages extra) ..	per ton	38	10	0
Best Linseed Oil Putty	per cwt.	0	15	0
Filicol	,,	0	15	6
Size. XD quality	fkn.	0	3	6

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per ft.		Per ft.
15 oz. fourths ..	2½d.	32 oz. fourths	6½d.
15 ,, thirds ..	3½d.	32 ,, thirds.....	9½d.
21 ,, fourths ..	4d.	Obscured Sheet, 15 oz.	3½d.
21 ,, thirds....	4½d.	,, ,, 21 ,,	4½d.
26 ,, fourths ..	4½d.	Fluted 15oz.6½d., 21oz.	9d.
26 ,, thirds....	6½d.	Enlled 15 oz.4½d..21oz.6½d.	

Extra price according to size and substance for squares cut from stock

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per ft.
⅛ Rolled plate	4½d.
3/16 Rough rolled	5½d.
¼ Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic Stippolyte, and small and large Flemish White	5½d.
Ditto, tinted	8½d.
Rolled Sheet.....	4½d.
White Rolled Cathedral.....	4½d.
Tinted do.	6½d.

Cast plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon. £	s.	d.
Oak Varnish	Outside	0	14	0
Fine ditto	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage.....	ditto	1	4	0
Best ditto	ditto	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting.....	ditto	1	0	6
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	2	0
Best ditto	ditto	1	12	0
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	6
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	6
Knotting (patent).....		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Terebine.....		0	9	0
Cuiras Black Enamel.....		0	7	0

Winterbourne Central School, Croydon.

Writing with regard to the list of tenders relating to the Winterbourne Central School, published on page 319 of our issue for February 17, Messrs. Truett & Steel, Ltd., of Thornton Heath, point out that the figure against their name, £17,247, is a revised figure, on account of the building being reduced. Their estimate as originally sent in was £18,497, which they consider should be the figure shown.

Bath Master Builders' Dinner.

Mr. Robert Blackmore presided over a large company on the occasion of the annual dinner of the Bath Master Builders' Association, held at the Red House Restaurant. Councillor G. E. Hiskins, proposing the "Master Builders' Federation," said no industry had during the last few years exercised such an influence on the welfare of the country. When the authorities woke up to the fact that their housing policy was a failure they went to the Federation and asked for its advice and co-operation, which were freely given, with the result that during the past few years more houses had been built than at any similar period.

Replying to the toast of the "Bath Master Builders," proposed by the Town Clerk, the Chairman suggested, with regard to the building classes held at the technical school, that the association should give a prize annually to the best student. He was gratified at the progress that was being made in the trade, and at the good feeling existing between employers and employed.

THE SCOTTISH BUILDER

HOUSING PROGRESS IN SCOTLAND

The following figures show the progress that has been made in State-aided housing schemes in Scotland to January 31, 1928 :—

	Completed.	Under Construction
1919 Act	25,550	—
Private subsidy schemes (1919 Additional Powers Act)	2,324	—
Slum clearance schemes ...	6,584	3,089
1923 Act:—		
By local authorities ...	3,909	54
By private enterprise ...	11,854	2,530
1924 Act:—		
By local authorities ...	18,415	11,921
By private enterprise ...	422	302
Demonstration houses ...	17	—
Steel houses erected on behalf of Government by Scottish National Housing Company	2,370	172
	71,445	18,068

NEW BUILDINGS IN SCOTLAND

Glasgow.—HOUSING.—A large extension of the Glasgow Corporation housing scheme at Knightswood has been sanctioned by the Glasgow Dean of Guild Court. In their plans the Housing Department make provision for the erection of 822 dwellings in area No. 4 of that scheme. Sanction has also been given for the erection of a picture-house at the Great Western Boulevard by the N.B. Theatres, Ltd., 216, Bath-street. The private building scheme at Jordan-hill will be undertaken by Mr. James Downs, builder, Crow-road, who proposes to erect 82 semi-detached and terrace houses in Jordanhill-drive, Chamberlain-road, etc. The Congregational Union of Scotland are also to erect a church hall in Mosspark Boulevard at Ladybank-drive.

Greenock.—HALL.—The Greenock Dean of Guild Court has passed plans for the Victoria Bowling Club to erect a new clubhouse on the site of the existing building.

Glasgow.—EXTENSIONS.—Amended plans have been approved by the Port-Glasgow Dean of Guild Court for the M'Gregor's Port-Glasgow Engineering Co., Ltd., for extensions to the present buildings and erection of new workshops at Dockhead, Port-Glasgow.

Dundee.—HOUSING.—The Housing Committee of the Dundee Town Council agreed to purchase Wester Clepington estate for £10,000.

Edinburgh.—BUILDING.—Warrant for building extensive additions to Messrs. M'Vitie & Price's biscuit factory at Robertson-avenue, Edinburgh, was granted by Edinburgh Dean of Guild Court. The architect is Mr. Alister G. MacDonald. The new building is estimated to cost £24,000. Other warrants granted were :—Mr. T. Brown—17 lock-up garages at Piershill-terrace; Trinity Recreation Club, Ltd.—additions and alterations at Stirling-road, Trinity; Burnett H. H. Orphoot—villa and garage at Murrayfield-road; Messrs. J. Hardie & Son—six bungalows at Hailes-gardens, Colinton.

Obituary.

Mr. William Alexander, retired builder, who for many years was well-known in the building trade in Aberdeenshire, particularly on Donside and Deeside, has died at his residence, Kebbaty House, Midmar. Born at Fraserburgh in 1844, Mr. Alexander was educated at the Public School there, and was trained by his father, who belonged to the parish of Crimond. While still a young man, he was engaged by Mr. Francis Christie, and was the master hand in the erection of the beautiful chapel at Cluny Castle, and was likewise responsible for the additions at Dunecht House during the enlargements carried out by Lord Lindsay.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rate of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons',‡ Bricklayers',‡ Plasterers'.†
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/0½	1/6½	1/6½	1/7½	1/6½	1/6½	1/5½	1/1
Ayr	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2½
Bathgate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge	1/8	1/9	1/8	1/8	1/8	—	1/6½	1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/6½	1/2
Dundee	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/8	1/3
Dunfermline	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/7½	‡1/2½ †1/3-1/3½
Edinburgh.....	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/8	1/3½
Falkirk	1 7½	1 7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow.....	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/7½	1/7½	1/7	1/8½	1/7½	1/7½	1/7	1/2½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	1/2½
Inverness	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/- to 1/2
Kilmarnock	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/8	1/2½
Kirkcaldy	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/8	‡1/2½ †1/3-1/3½
Kirkwall	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/- to 1/2
Leith	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/8	1/3½
Motherwell	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3
Stirling	1/7½	1/7½	1/7½	1/9	1/7½	1/7½	1/7½	1/2½
Stirlingshire..... (Eastern District)	1/8-1/10	1/8-1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 389.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	,, ,,	1	0
Add for every additional depth of 6 ft.	,, ,,	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	,, ,,	1	0

CONCRETOR.

Portland cement concrete in foundation 1 to 6	per yard cube	38	0
Add if in underpinning in short lengths	,, ,,	7	0
Add if in floors 6 in. thick	,, ,,	3	3
Add if in beams	,, ,,	3	9
Add if aggregate 1 : 2 : 4	,, ,,	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	,, ,,	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	32	0	0
Add if in stocks	,,	7	10	0
Add if in Staffordshire blues	,,	22	0	0
Add if in Portland cement and sand	,,	1	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat struck or weathered joint	,, ,,	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	,, ,,	0	0	10
Axed in stocks	,, ,,	0	1	9
Rubbed and gauged jointed in putty camber or segmental	,, ,,	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	,, ,,	0	1	0
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	,,	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	,, ,,	9	6
Three-quarter-inch on flats in two thicknesses	,, ,,	6	3
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	,, ,,	1	2

MASON.

York stone templates fixed	per foot cube	13	0
York stone sills fixed	,, ,,	22	0
Bath stone and all labour fixed	,, ,,	10	6
Beer stone and all labour fixed	,, ,,	15	0
Portland stone fixed	,, ,,	20	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	,,	80	9
Do. 24 in. × 12 in. Do. Do.	,,	90	0

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	5	0
Do. joists	,, ,,	5	6
Do. roofs, floors and partitions	,, ,,	6	0
Do. trusses	,, ,,	8	6

		¾″	1″	1¼″	2″
Deal rough close boarding	per sq.	35/6	40/-	45/-	72/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	,,	50	0
Do. to beams	per ft. sup.	1	0
Centre for arches	,,	1	6
Gutter boards and bearers	,,	1	0

FLOORING.

		¾″	1″	1¼″	1½″
Deal-edges shot	per sq.	—	44/6	53/-	60/6
Do. tongued and grooved	,,	—	49/-	57/6	65/-
Do. matchings	,,	45/-	51/-	—	—
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/-	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	,, ,,	2	1
Add for fitting and fixing	,, ,,	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	,, ,,	3	9

DOORS.

		1½″	1¾″	2″
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	,,	2/5	2/8	2/11
Two-panel moulded both sides	,,	2/8	2/11	3/2
Four-panel Do. Do.	,,	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1″	1¼″	1½″
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	,,	1/4	1/6	1/9
Add if cross-tongued	,,	2d.	2d.	2d.

STAIRCASES.

	1″	1¼″	1½″	2″	2½″
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail : average, 3 in. × 3 in.	,, ,,	6	0
Add if ramped	,, ,,	12	0
Add if wreathed	,, ,,	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	,,	19	0
Do. stanchions	,,	21	9
In roof work	,,	27	6

RAIN-WATER GOODS.

		3″	4″	5″	6″
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	,,	1/9	2/-	2/6	3/3
Rain-water pipes with ears	,,	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	,,	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	,,	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	42	0
Do. Do. in flats	,,	41	0
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	,, ,,	1	3
Copper nailing	,, ,,	0	3

		½″	¾″	1″	1½″	2″	4″
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	,,	1/8	2/2	2/7	3/10	—	—
Do. soil	,,	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	,,	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	,,	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	,,	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	,,	—	—	—	14/7	19/6	—
Bib cocks and joints	,,	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	,,	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard. sup.	2	6
Do. Do. Sirapite	,, ,,	2	9
Do. Do. Keen's	,, ,,	4	0
Add saw lathing	,, ,,	1	7
Add metal lathing	,, ,,	2	6
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	,, ,,	2	2
Do. plain face	,, ,,	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	6

GLAZIER.

		s.	d.
21-oz. sheet plain	per foot sup.	0	8½
26-oz. Do.	,, ,,	1	0
Obscured sheet	,, ,,	1	1
⅛-in. rolled plate	,, ,,	0	9
¼-in. rough rolled or cast plate	,, ,,	0	10½
¼-in. wired cast plate	,, ,,	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	,, ,,	0	7
Plain painting, 1 coat	,, ,,	0	9
Do. 2 coats	,, ,,	1	2
Do. 3 coats	,, ,,	1	9
Do. 4 coats	,, ,,	2	4
Graining	,, ,,	2	3
Varnishing twice	,, ,,	1	9
Sizing	,, ,,	0	3
Flatting	,, ,,	0	7
Enamel	,, ,,	1	1
Wax polishing	per foot sup.	0	6
French polishing	,, ,,	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployments Acts and from 1s. 6d. per £100 for Fire Insurance.

The whole of the information given on this page is copyright.

TRADE NEWS

Keyed Block Flooring.

Mr. William J. Bennett, Managing Director of the "Zeta" Wood Flooring Co. (1910), Ltd., of Essex House, Stratford, E.15, has, we understand, taken out a provisional patent for a new tongued and grooved system, by which method of keying a great saving in the cost of keyed block flooring is obtained.

Old Tudor Palace, Enfield.

Referring to the note under this heading on page 289 of our Feb. 17 issue, Messrs. Samuel Wright & Co., Ltd., write to point out that they were responsible for taking down the centuries-old ceiling complete with original oak rafters, also the stone fireplace, and for refixing at Major Leggatt's house. This work was carried out under the supervision of Messrs. Allen Fairhead & Sons, of Enfield.

A Handbook on Patents.

We have received from Messrs. King's Patent Agency, Ltd., 146a, Queen Victoria-street, E.C.4, a copy of their very useful booklet, "Patents for Inventions." Messrs King inform us that they will be pleased to advise readers free upon the subjects in which the agency specialises.

Combined Boilers and Ovens.

Messrs. Hartley and Sugden, Ltd., of Halifax, have lately put on the market their new models 7 and 8 of the "Thermostove." Advantages claimed for this type of combined fire, water-heater and cooker are that no brick setting is required; anthracite or coke or coal may be used as fuel, and the boiler is entirely removed for cleaning purposes. Leaflets will be sent upon application.

A New Tilting-type Mixer.

This is the Marshall-Benson concrete mixer, put on the market by Messrs. Marshall, Sons & Co., Ltd., of Gainsborough, whose London address is 3, London Wall Buildings, E.C. 2. Soundness in design, strength of construction, facility in handling, and low-running expenses are claimed for this machine, which can be supplied in a size and model to suit every requirement. Marshall-Benson machines are, we learn, being used by the Ministry of Transport on contracts for the Air Ministry. This firm has also produced a new heavy oil engine of the "MV" type which works on the two-stroke cycle and for which many sterling advantages are claimed. Folder illustrations of both these machines may be obtained upon application.

An Insulating Brick.

Messrs. J. H. Sankey & Son, Ltd., of Canning Town, E., and 7-8, Norfolk-street, W.C. 2, have issued a booklet drawing attention to the merits of the new insulating material "Fosalsil," which we have referred to before in our issue for September 16, 1927. This material — the ultimate outcome of a certain diatomaceous earth — is made into bricks, partition and flooring blocks, slabs, etc., and is claimed to be mechanically strong, completely resistant to fire, while having the additional advantage of lightness. These claims are borne out by the decision of the Ministry of Health to approve, through its Standardisation and New Methods of Construction Committee, of external walls being built of two thicknesses of "Fosalsil" hollow bricks (each 2½ in. thick) with a 2 in. cavity between, for one-story buildings; or alternatively two thicknesses (each 3½ in. thick) with a similar cavity, for two-storied buildings.

Decorators' Colour Card.

We have received from Messrs. Blundell, Spence & Co., Ltd., of 9, Upper Thames-street, E.C.4, a new colour card illustration of this firm's "Pammel," a petrifying liquid enamel. This is one of this firm's oldest and most popular specialities, and this card, showing a full range of attractive colours, will be found of the greatest use by architects and decorators.

Combined Bell and Burglar Alarm System.

An exhibit of interest at the Ideal Home Exhibition at Olympia will be the "Magnet" combined bell indicator and burglar alarm system. In effect, this is an ordinary domestic electric-bell system, in which there is a bell-push in each of the principal rooms of the house, and pendulum service indicator in the kitchen. For the burglar-alarm part of the system, the wiring is extended to the windows and doors, to which are attached G.E.C. burglar-alarm contacts. In addition, there is, in the main bedroom, a mechanical indicator and a continuous-action bell, which is fitted with a device ensuring continuous ringing when once the circuit has been made, and it is claimed that the system is absolutely foolproof, simple to operate, and wonderfully efficient.

Concrete Mixers.

Messrs. Ransomes & Rapier, Ltd., of Waterside Iron Works, Ipswich, have issued a new catalogue, No. 201, in which is described their light-weight "Ransome" tilting-drum mixer. This machine, which has a 7 cub. ft. unmixed material capacity, is fitted with a 3-b.h.p. Boulton & Paul water-cooled four-stroke engine, while every machine is guaranteed for a year. Further details will gladly be furnished by the makers.

Sands, Clays, etc.

We learn from Mr. Algernon Lewin Curtis, of the Westmoor Laboratory, Chatteris, that it has been necessary to print a fourth edition of his booklet on "Sands, Clays, and Economic Minerals for all Industrial Purposes." The booklet, which may be obtained, price one shilling, from the author, is of the very highest interest to the architect, engineer, and contractor.

A House Journal.

We acknowledge with thanks receipt of the February issue of "Petter's Monthly News," produced, price 2d., by Petter's, Ltd., of Westland, Yeovil. We were particularly interested in the feature, "Across the Seven Seas," from which we learn that Petter engines are employed in many countries for many purposes, from a schooner on the New Guinea coast to fish plants in British Columbia.

"HENDERSON"

SLIDING DOOR GEAR

FOR FACTORIES, GARAGES, SCHOOLS, ETC.,

"TANGENT JUNIOR" FOR LIGHT DOORS
"TANGENT SENIOR" FOR HEAVY DOORS.

WRITE FOR BOUND CATALOGUE B.26 TO:-

P.C.HENDERSON, LIMITED.

TANGENT WORKS, BARKING, ESSEX.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him next week not later than Tuesday evening.

- • **Denotes *accepted*.**
- † **Denotes *provisionally accepted*.**
- ‡ **Denotes *recommended for acceptance*.**
- § **Denotes *accepted subject to modifications*.**

Alperton.—New dyeing and carpet-cleaning works for Messrs. Shahinian, Ltd., High-street. Messrs. Gunton & Gunton, FF.R.I.B.A., Empire House, St. Martin's-le-Grand, E.C.2:—

°Gee, Walker & Slater, Ltd.

Barnsley.—Extensions at the Grammar School, for Governors of Barnsley and District Holgate Grammar School:—

°C. Smith, Barnsley £15,426

Barking Town.—Erection of 198 houses and flats on the Upney housing estate and for the construction of the roads, etc., for the U.D.C.:—

Houses—

Wm. Griffiths, Sons & Cromwell, Ltd.	£97,943 0 0
Henry Newell	97,315 0 0
Rice Bros. (Norwich), Ltd.	97,229 0 0
Myall Bros.	95,272 0 0
S. E. Moss	93,228 5 0
A. W. Jaggers & Sons, Ltd.	92,975 4 7
Surveyor B.T.U.D.C.	89,133 9 6
E. Clarke & Sons	87,722 0 0
Perrys (Ealing), Ltd.	86,215 0 0
Rhys J. Rees & Co.	85,397 0 0
Nissen-Petren Houses, Ltd.	84,339 2 0
Lawes Cherry & Co., Ltd.	79,465 11 8
Sherren, Ltd.	77,616 10 4

Roads—

R. H. Hartley & Co., Ltd.	£8,998 16 7
L. J. Speight, Ltd.	8,488 2 1
General Contracting & Engineering Co.	7,883 3 6
Perrys (Ealing), Ltd.	7,774 0 0
G. Wimpey & Co.	7,322 3 4
G. J. Anderson	7,187 11 9
Roads & Public Works, Ltd.	7,163 7 8
C. V. Buchan & Co., Ltd.	6,942 14 1
Engineer and Surveyor	6,652 13 3
W. & C. French	6,581 8 9
P. Gallagher, Ltd.	6,561 2 7
Brookes, Ltd.	6,467 0 7
Muirhead, Macdonald, Wilson & Co., Ltd.	6,414 8 4
Swainson & Co., Ltd.	6,278 5 9
Commercial Structures, Ltd.	6,109 5 9
Durnford Construction Co.	5,950 0 0
‡T. W. Pedrette	5,857 5 7

Belfast.—2 folding partitions in St. Simon's Public Elementary School, for the C.B. Education Architect:—

°Bennet Furnishing Co., Belfast ... £114 3 6

Blantyre.—Reinforced concrete culvert across the Rotten Calder Water at Priory Bridge, for the District Committee of the Lanarkshire Middle Ward. Mr. W. A. Chapman, surveyor, County-road, District Offices, Hamliton:—

°Crowdy, Russell & Co., Ltd., Glasgow £13,531 4 7

Brighton.—Erection of about 1½ miles of fencing at Lower Paythorne Farm, for the C.B.:—

Per mile

°H. L. Goodman & Son, Bristol £110

Brixton.—Rebuilding of premises in Brixton-road, S.W.2, for Bon Marché, Ltd., drapers. Messrs. H. Payne Wyatt, Son & Partners, architects, 465, Brixton-road, S.W.:—

°A. & F. L. Leather, Ltd., London.

Steelwork—

°Redpath, Brown & Co., Ltd., London.

Bury.—New nurses' home at the Infirmary. Mr. A. C. M. Lillie, F.R.I.B.A., architect, Bamberbridge, Preston:—

J. Tinline, Ltd., Bury.

Cowes (Isle of Wight).—New generating station, East Cowes, for Messrs. Edmundsons Electricity Corporation. Messrs. North, Robin & Wilsdon, chartered architects, 35-39, Maddox-street, W.1. Quantities by Mr. Henry A. Mackmin, F.S.I., 10, Vigo-street, W.1:—

Allen Fairhead & Sons, Enfield	£10,789
Industrial Constructions, Ltd., London	10,027
C. H. Boyd & Son, Ltd., London	9,922
James Ball & Son, Cowes	9,488
J. F. Blair & Co., Ltd., London	9,478
°Frank Bevis, Ltd., Portsmouth	9,428

Dublin.—Rebuilding 45, Upper O'Connell-street, for the Commissioners of Public Works:—

°G. W. Scott & Co., Dublin.

Dublin.—Reconstruction of the City Abattoir, for Dublin Commissioners:—

°H. & J. Martin, Ltd. £28,134

Dukinfield.—6 more houses, for the T.C.:—

°M. Warrington, Ltd.

Esher.—Building on the site of the proposed fire station, for the U.D.C.:—

°Milham & Sons, Esher £3,594

Eynesbury.—Church for trustees of Primitive Methodist Church. Mr. H. Kelsall Armitage, architect, 130, Haverstock Hill, London, N.W.:—

°G. Wrycroft & Sons, St. Neots, Hunts.

Greenock.—Plastering 36 houses at Port Glasgow-rd., for the Corporation. Mr. Robert Millar, architect and surveyor. Quantities by Mr. J. S. Law:—
*H. McG. Murray, Greenock.

Hailsham.—2 houses at Vines-cross, Heathfield, for the R.D.C. Mr. W. O. Humphery, engineer and surveyor:—

Hoad & Taylor, Horsham	£1,027
Mitchell Bros., Horcham	1,025
T. Rich, Exors., Hailsham	975
C. Huckell, Dane-hill	957
G. Gower & Sons, Eastbourne	925
F. Bristow & Sons, Ninfield	920
‡Sherren, Ltd., Lewes	900

Halifax.—Library, Beechwood-road, Ovenden, for the C.B. Borough Engineer:—

Joiner—
*H. H. Brook, Sowerby Bridge.
Mason—
*Mosley & Radcliffe, Halifax.
Plumber—
*Percy Smith, Halifax.

Hinckley.—Six parlour type houses on the Barwell, for the R.D.C.:—
*G. H. Pegg, Earl Shilton £2,879

Holbrook.—Widening a small length of road and construction of a new bridge near Coxbench Station, Holbrook, for the Belper R.D.C. Mr. R. C. Cordon, engineer and surveyor:—

D. Roberts, Ilkeston, Derbys.	£794
C. S. Tomlinson, Alfreton, Derbys.	592
Bowmer & Kirkland, Heage, near Belper	587
Hodges & Porter, Burton-onTrent	564
Jos. Payne, Crich, near Matlock	539
*W. W. Tomlinson, South Normanton (Surveyor's Estimate, £566.)	525

Hull.—400 non-parlour type houses on the West Hull housing estate, for the T.C. Mr. D. Harvey, A.R.I.B.A., City Architect:—
*H. M. Nowell, Stockton-on-Tees £132,014 5

Ireland.—The following contracts have been placed by the Commissioners of Public Works:—

Corbetstown Garda Siochana Station, Co. Kilkenny (erection of station)—
*M. J. Purcell, Coolcullen, Co. Kilkenny.

Castletown Geoghegan Garda Siochana Station (reconstruction)—
* P. Nolan, Athlone.

Coachford Garda Siochana Station, Co. Cork (erection of station)—
*J. M. O'Keeffe, Mallow.

Kilmeedy National School, Co. Limerick (erection of school)—
* J. Cleary, Charleville.

Niall Mor National School, Co. Donegal (enlarging of school)—
*J. Cunningham, Killybegs.

Land Registry, Dublin (restoration)—
Collen Bros., Ltd., Dublin.

Louth National School, Dundalk (improving of school)—
*O. Carroll, Kilcurley, Dundalk.

St. Caithlins (Kilvicadonig) N.S., Co. Kerry (erection of school)—
*J. Flahive, Dingle.

Salerna National School, Co. Galway (enlarging of school)—
*P. J. McDonnell, Leenane.

St. Oran's (Sladran) National School, Co. Donegal (erection of school)—
*Ed. Barr, Buncrana.

Kidderminster.—Domestic subjects centre in Castle-road, for the T.C. Mr. J. Hawcroft, Boro' Engineer and Surveyor. Quantities by Mr. Henry Vale & Sons, Wolverhampton:—

Chas. Coulson, Dudley	£4,375 0
Chas Walker & Sons, Kidderminster	4,265 0
A. H. Guest, Ltd., Stourbridge	4,589 0
Bridgewater Bros., Cradley Heath	4,098 10
Lacy Bros., Kidderminster	4,136 10
J. H. Smith, Kidderminster	4,299 0
R. Thompson & Sons, Kidderminster	3,838 0
*Thos. Vale & Sons, Stourport	4,158

Kildare.—Repairs to (a) 38 cottages, in Celbridge, and (b) 25 cottages, for County Board of Health:—
*H. Ardagh .....(a) £415 (b) £245

Leeds.—80 houses at Laurel Bank, Headingley, Leeds. Mr. G. H. Shipley, architect, 12, Park-lane:—
*Read Bros., Corsforth, Yorks.

Leeds.—New dye house and cloth room at Providence Mills, Whitehall-road, for Messrs. J. Hardcastle, Ltd. Mr. L. C. Hirst, architect, Morley:—

Builder
*J. Wain, Wortley.
Joiner—
*A. Ambler, Morley.
Slater—
*G. Rogerson, Ltd., Morley.

Leeds.—New building for the Mining Department, for the University Council. Messrs. Lanchester, Lucas & Lodge, architects, 19, Bedford-square, W.C.1:—
*W. Airey & Son (Leeds), Ltd.

Leslie.—40 houses, at Maryfield site, for the T.C. Messrs. Walker & Pride, architects, Church-square, St. Andrews. Quantities by the architects:—

General Contractor—
*R. Terras, East Wemyss £14,210 15
Brickwork—
*R. Terras, East Wemyss.
Joiner—
*J. Carmichael, Markinch.
Plumbers—
*J. Whyte & Son, Leslie.
Slaters—
*J. Robertson & Son, Dunfermline.
Plasterers—
*D. & T. Peebles, Leven.
Electric Light—
*Roberts & Buist, Kirkcaldy.
Glaziers—
*D. & J. Edmond, Cupar.
Painter—
*J. M. Roy, Leslie.
Grates—
*W. L. Ireland, Kirkcaldy.

Leyland.—Branch bank premises at Golden Hill-lane, for the Manchester & County Bank, Ltd. Messrs. Mills & Murgatroyd, architects, 23, Strutt-street, Manchester:—
*Leonard Fairclough, Ltd., Adlington.

London.—Additions to the Institute, Hampstead Garden Suburb. Mr. Chas. E. Hanscomb, F.R.I.B.A., architect, Sanderstead, in consultation with Sir Edwin Lutyens, R.A.:—

F. Troy & Co.	£37,423 0 0
Y. J. Lovell & Sons	36,867 0 0
W. Moss & Co.	36,301 8 5
Godson & Sons	36,000 0 0
H. Knight & Sons	35,636 0 0
‡A. Monk, Edmonton	35,100 0 0

London.—Police married quarters at Wilmington-square, Clerkenwell, for the Metropolitan Police. Mr. G. Mackenzie Trench, F.R.I.B.A., Police Architect and Surveyor, New Scotland Yard, S.W. Quantities by Messrs. Thurgood, Son & Chidgey, 18, Adam-street, W.C.2:—

Sims & Russell	£96,300
Trollope & Colls, Ltd.	95,650
James Carmichael, Ltd.	94,999
Sabey & Son	93,471
Prestige & Co., Ltd.	92,965
Higgs & Hill, Ltd.	92,200
Holliday & Greenwood, Ltd.	92,150
John Mowlem & Co., Ltd.	89,930
Dove Bros., Ltd.	89,812
F. G. Minter, Ltd.	88,657
Thomas & Edge	88,140
F. & H. F. Higgs, Ltd.	88,118
Patman & Fotheringham, Ltd.	87,217
T. H. Adamson & Sons	87,129

London.—Improving the lavatory accommodation at the Limehouse Town Hall, for the Stepney B.C.:—

Ashby & Horner, Ltd.	£615 0
W. Gladding & Co.	599 0
W. Sharpin	586 0
G. Barker	583 10
Turnbull & Son	562 10
W. Simms	473 0
Borough Surveyor	450 0

London.—Rebuilding of Nos. 18, 20 and 22, Regent-street, S.W.1, for Messrs. Elkington & Co., Ltd., silversmiths. Mr. Durward Brown, F.R.I.B.A., architect, 14, Waterloo-place, Regent-st., S.W.1:—
*Holland & Hannen and Cubitts, Ltd., London.

London.—New shopping arcade, restaurant, staff-rooms, etc., at Messrs. William Whiteley, Ltd., Westbourne-grove and Queen's-road, W.2. Mr. C. H. Fitch, architect:—
*Vigors & Co. (Poplar), Ltd., London.

London.—Block of shops and flats in Stratton street and Berkeley-street, W.1. Mr. Horace Gilbert, F.R.I.B.A., architect, 60, Buckingham Palace-road, S.W.1—
*Rice & Son, London.
Steelwork—
*Lambourne & Co., Ltd., Manchester.
Floors—
*Caxton Floors, Ltd., London.

London.—Residence in Queen Anne's-street, S.W.1. Mr. Frederick J. Wills, F.R.I.B.A., architect, 62, Oxford-street, W.1:—
*Bovis, Ltd., London.

Luton.—Alterations to 52, Napier-road, for maternity home, for the T.C.:—
*H. Laceey & Son.

Malmesbury. — Reconstruction of drainage system and other small structural works at the Institution for the B.G. Messrs. Parker Pearson and Ross Hooper, engineers, Dallas Chambers, Chippenham. Quantities by the engineers:—
*Downing & Rudman, Chippenham £957 0 0

Manchester.—Alterations and additions at Ducie-avenue Municipal School, Chorlton-on-Medlock, for the E.C.:—
*J. & J. Parish, Ltd., Manchester.

Manchester.—Supplying and fixing of wrought iron railings and gates at Levenshulme Municipal High School for Girls, for the E.C.:—
*Wm. Blacker, Stalybridge.

Manchester.—Providing and fixing low-pressure heating apparatus at the Municipal School of Art, Chorlton-on-Medlock, for the E.C.:—
*J. Turton & Sons, Manchester.

Mayhill (Swansea).—50 houses, at Mayhill, for the County Borough. The Borough Architect, Town Hall, Swansea:—

Samuel & Evans	—
* E. J. Price, Cardiff	£20,741 7 8

Nenagh.—26 new houses in Stafford-street, for the Council:—

	Per house.
E. R. Warren, Nenagh	£443 0 0
Walter O'Flaherty, Galway	413 0 0
M. Gough, Limerick	399 10 0
J. Skehan, Thurles	388 2 11
O'Dwyer & Fogarty, Thurles	378 0 0
Roche, Morrissey & Kennedy, Clonmel	367 9 7
Charles Doyle, Mullingar	331 0 0
J. Lambe, Thurles	324 0 0
Walsh Bros., Clonmel	321 0 0
*P. Hogan, Banagher	299 0 0

Newcastle.—New church at Fenham, St. James' and St. Basil, for Sir James Knott:—
*A. Pringle, Ltd., Newcastle and Gateshead ..... (approx.) £50,000

Newcastle.—Construction of the buildings of the North-East Coast Exhibition:—
*H. Kelly, Ltd., Newcastle.

Nottingham.—For (a) 8 small shops with houses attached, on the Lenton Abbey estate, and (b) 8 similar small shops and houses on the Cardale-road, Carlton Hill estate, for the T.C. Mr. T. Cecil Howitt, architect, 58-59, Long-row:—
*(a) Perks & Son, Ltd., Long Eaton.
*(b) Thos. Bow, Nottingham.

Plymouth.—Repairs. Improvement and repair of existing hutments at Waterloo-place and existing hutments and stone dwellings at Elphinstone Barracks (Citadel site), for the C.B. Mr. J. Wibberley, Borough Architect, Engineer and Surveyor:—
*R. H. Roberts, Plymouth.

Preston.—157 houses, for the C.B. Mr. W. Platt, Borough Engineer and Surveyor:—
*Davey, W. H. & Co., Runcorn.

Shepton Mallet.—House. A. J. Allen, architect and surveyor, Half Moon-street, Sherborne:—

Theo Conway, Ltd., Weymouth	£2,097 0 0
Bird & Pippard, Ltd., Yeovil	1,700 0 0
Wm. R. Rist, Langport	1,564 0 0
Padfield & Co., Ltd., Wells	1,463 10 0
Charlton Bros., Evercreech	1,450 0 0
*E. G. Padfield, Son & Co., Ltd., Shepton Mallet	1,400 0 0

Shoeburyness.—Painting, etc., at refreshment pavilions, conveniences, Red Cross hut, two private bathing huts and sewage hut, at the common and refreshment pavilion and conveniences at Whitaker's Front, for the U.D.C. Mr. J. W. Stevens, surveyor. Quantities by the surveyor:—

Vyvyan Bros., Westcliff-on-Sea	£211 9 0
J. G. Pawsey, Shoeburyness	188 18 6
R. G. Meadows & Son, Southend-on-Sea	158 0 0
H. A. Beecroft & Co., Rochford	130 0 0
H. Humphrey, Westcliff-on-Sea	103 0 0
*H. J. Wood, Thorpe Bay	84 2 6

Solihull.—Dwellings for the R.D.C. (a) Balsall, 8, Balsall-street; (b) Packwood, 8, Aylesbury-road; (c) Tanworth, 14, Illshaw Heath. Mr. W. T. Orton architect, 7, Waterloo-street, Birmingham:—

*A. & S. Smith, Birmingham (a)	£3,119 10 0
*E. L. Lewis, Redditch (b)	2,556 0 0
*E. L. Lewis, Redditch (c)	4,473 0 0

Southend-on-Sea.—107 houses and 12 flats at Eastwood-lane, Westcliff, for the C.B.:—
*W. L. Allan £53,545

Soyland.—Wall at the memorial site, for the Council:—
*W. Parker.

St. Just.—Women's Institute:—
*Marks & Trezise, St. Just £559

Swansea.—For public conveniences at (a) Llansamlet and (b) Cwmbwrla, for the County Borough. Borough Architect, Town Hall, Swansea:—

(a) J. & F. Weaver, Swansea	—
* Lloyd & Davies, Port Talbot	£1,319 6 4
(b) J. & F. Weaver, Swansea	—
* Lloyd & Davies, Port Talbot	1,292 10 0

Tankerton.—For erection of the Grand Pavilion and Flats, Marine Parade, Tankerton. Mr. W. Puttick, architect, 71, Harbour-street, Whitstable:—

Bovis, Ltd.	£32,777
Industrial Constructions, Ltd.	30,390
J. Kemp	27,400
Vant & Son	27,073
Rice & Son	26,280
Sharman, Ltd.	26,200
C. H. H. Kenworthy	25,000
*Barton & Co.	22,634

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Templemore.—Painting the new Town Hall, for the U.D.C.:—
* C. Cahill £150

Thurgoe.—For 6 houses each at (a) Fornham All Saints and (b) Risby, for the R.D.C.:—
*(a) W. B. Kingsbury, Boxford.
*(b) G. Ellwood, Barrow.

Walthamstow.—School to accommodate 400 on the Billet-road site for the E.C. Mr. H. Prosser, F.R.I.B.A., Architect to the Committee, High-street, Walthamstow, E.17:—

A. Roberts & Co., Ltd., London	£14,912 0 0
Nissen-Petren Houses, Ltd., London	14,553 0 0
Canonbury Construction Co., London	14,448 0 0
J. Sands, Walthamstow	13,985 0 0
E. A. Russell, Walthamstow	13,900 0 0
H. Knight & Son, Tottenham	13,778 0 0
E. D. Winn & Co., Ltd., London	13,498 0 0
Sabey & Son, Islington	13,256 0 0
Chessums, Ltd., Tottenham	13,235 0 0
F. J. Coxhead, Leytenstone	13,132 0 0
Griffiths, Sons & Cromwell, London	13,100 0 0
J. W. Trudgett, Colchester	13,100 0 0
J. & J. Dean, Leyton	12,900 0 0
R. Ginn & Son, Hertford	12,899 0 0
W. J. Maddison, Ltd., London	12,725 0 0
Gee, Walker & Slater, Ltd., London	12,690 0 0
Rowley Bros., L'd., Tottenham	12,633 0 0
A. Monk, Edmonton	12,600 0 0
W. J. Cearns, Stratford	12,351 0 0
F. & A. Bayntun, London	12,345 0 0
A. E. Symes, Stratford	12,312 0 0
*F. R. Hipperson, Norwich	12,200 0 0

Warwick.—Structural alterations to the Campion Terrace property, for the R.D.C.:—
*R. P. Gathercole £384

Wath.—Extensions to the secondary school, for the Governors:—
*A. Gregory & Sons, Ltd.

Williton.—Alterations to the lying-in ward, for the B.G.:—
*J. Chibbett & Sons £133 5

Wood Green.—Combined centre in White Hart-lane, for the U.D.C.:—
* W. E. Silk & Son, Wood Green..... £1,984 10

Steel Houses in Scotland.

Following the refusal by the Glasgow Corporation of Lord Weir's offer of the Cardonald housing factory on condition that the city would agree to build not fewer than 5,000 steel houses, it is officially announced that Lord Weir has decided to close the factory.

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